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ON THE LOCALISATION OF THE FUNCTIONS OF THE
BRAIN WITH SPECIAL REFERENCE TO THE
FACULTY OF LANGUAGE.

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THE aim of modern science is most undoubtedly to unite branches of inquiry which have long been unnaturally separated. The most apt illustration of this tendency towards union between different branches of science, is the fusion which has recently taken place of the anatominist, physiologist, pathologist, psychologist, and physiognomist, into one homogeneous body. Long separated into different and frequently hostile camps, they have now united, leaving, we trust, all their squabbles and prejudices behind them. The good old word Anthropology is the banner under which this most desirable amalgamation has been effected. Not only, however, has there been a union of different branches of science, but we have had, at the same time, a junction of two opposite methods of scientific inquiry. The method of the modern anthropologist is neither purely inductive nor purely deductive. It unites in itself, as all genuine progressive science must do, both methods. The science of Anthropology rests on no narrow basis; its conclusions are not derived from any one branch of science. It leaves out nothing which is necessary to form a real science of man and mankind. Herein lies its power; and here, also, was doubtless the cause why it was so vehemently assailed when it

first began to arouse the intellectual faculties of the races of Western Europe. The union of the anatomist, physiologist, pathologist, psychologist, and physiognomist, with the archaeologist and ethnographer, has been effected amongst the *savants* of France, and is gradually being effected amongst their *confrères* in England, Germany, and America. If a method had been required to render the conclusions of Man-science unsatisfactory, none better could have been found than by separating the different branches of one science. This scientific revolution, by which a union of these sciences has been effected, is not confined to Europe, but is showing itself in nearly every part of the globe where science is at all studied. It is instinctively felt by the isolated students of different branches of the science of Anthropology, that only one desideratum to give their conclusions the weight and value they deserve is wanting, viz., a comparison of observations with other branches of the same science.

The subject of the present series of articles will serve as an illustration of the value of the union recently effected between the physiologist, pathologist, psychologist, and physiognomist. It will be seen that these are all names for parts of one and the same science—the science of human nature, now universally admitted to be properly designated by the word Anthropology. I shall have to draw illustrations for my subject-matter from each of these sciences. Why is it that psychology proper remains where it was two thousand years ago? Solely because she was too proud or too ignorant to call in aid of the physiologist and the pathologist. So, too, the nearly hopeless and chaotic condition into which the discoveries of Dr. F. Gall respecting organology have fallen is the result of, in the first place, insufficient foundation, and in the second, dogmatic teaching. Happily, most of the leading psychologists of Europe have seen and admitted the value of a union with the physiologist and pathologist. The discussions on the localisation of cerebral action before the Paris Anthropological Society, have inaugurated a new era in science—an era which cannot but have the most beneficial result; and it is most desirable that a similar era should be hastened in this country.

I shall not now stay to inquire whether physiology, pathology, physiognomy, or psychology, has contributed most to elucidate the subject of the localisation of the functions of the brain. I readily admit that each has contributed its fair quota, but most strongly insist that they are only rendered valuable when united into one science. It is only by surveying the rise and progress of our present knowledge, that we can really ascertain how far we are making an advance. While elated with satisfaction at our present progress, it behoves us well to remember how slow is the growth of all inductive

sciences ; at the same time, we cannot fail to observe how rapidly science advances when a true method has been obtained, and when we are able to shake off the yoke of traditional errors, against which, unfortunately, men of science have continually to struggle.

The contempt which scientific men now generally entertain for philosophy, is due, in a great measure, to the arrogant assumptions of a school whose disciples have not yet learnt that the age of speculative thought is passed, and that the present time is pre-eminently an age of science. The occupation of the dreaming theorist is gone, never, we trust, to return.

In the sequel, I shall have to touch on many points in mental science, such as Memory and Consciousness. These subjects appear, at first sight, to have but slight connection with the localisation of the faculty of Language, and yet it is necessary that we should comprehend what is meant by memory and other mental phenomena. Language is indeed only another word for thought; and without memory there could be no thought nor language.*

On this point I shall have to dwell at some length when I come to the most important question of a classification of the various forms of loss or defects of voice, articulation, speech, and language, which are associated with affections of the brain and the nervous system.

I need not now dilate on the vast importance of the subject in hand. Most cordially do I agree with Dr. Hughlings Jackson, when he says, "that to settle the position of one faculty, and especially of one so important as that of articulate language, will be a vast advance in physiological and psychological science."†

The many valuable works published on this subject, both in England, on the Continent, and in America, have hitherto mostly been considered from a purely pathological stand-point. My own treatment of the subject will be distinct in its method and aim from that of any other which has hitherto been attempted.

I have elsewhere,‡ some ten years ago, alluded to the researches of Dr. Bouillaud and M. Aequiel on certain morbid affections of the brain, and their influence on speech. M. Bouillaud at that time held that morbid affections of the anterior lobes of the brain alone affected speech ; while M. Aequiel contended that disorganisation of nearly any portion of the brain has the same effect. At that date, however, the subject of the localisation of the faculty of language, as a pathological

* I here use the word *language* in its widest sense, almost synonymous with *expression*.

† *London Hospital Report*, vol. i, p. 464.

‡ *Philosophy of Voice and Speech*, 1859, p. 322. A second edition of this work is now passing through the press.

question, was not ripe for discussion. From a physiological or a physiognomical stand-point, the question remained much in the same state as it was left by Gall.

Ten years ago, there were comparatively few physiological writers who had given in their adherence to the doctrine of organology. I then alluded to the curious, if not remarkable fact, that such a distinguished physiologist as the late Sir B. Brodie, had, in his *Psychological Enquiries*, announced his grave suspicions that there was in the brain a special organ of speech. Brodie quoted two cases of young children who were unable to speak, although the intellectual faculties were seemingly perfect; and he thought himself both justified and compelled to assume the existence in the brain of a special organ for speech. This was the more extraordinary, inasmuch as Brodie had long been an avowed opponent of both Gall's organology and cranioscopy.

During the last few years, however, the aspect of the whole question has been changed. The localisation of the functions of the brain is not only one of the questions, but is, with many anthropologists, the most important question of the day.

For some years it has been my good fortune to be in intimate correspondence with one of the most accomplished of French anthropologists; one who takes equal rank as an anatomist, physiologist, or pathologist. I allude to my distinguished colleague Dr. Paul Broca, who, in 1861, revived, by some important observations, the discussion of this subject. It is at the urgent solicitation of this distinguished *savant*, that I have consented to write on a subject at once so difficult and complicated. There are, however, other reasons why I should take a deep interest in this question. I not only look upon the localisation of the functions of the brain as a most important question from a scientific point of view, but this subject has also attractions of a purely practical nature. I purpose now, however, to confine myself, as far as possible, to the bearings of this question on what is called Mental Science, or perhaps, more correctly, the science of Cephalonomy.

The functions of the brain, like the laws regulating the action of the larynx in the production of vocal sounds, are to be discovered only by means of physiology combined with pathology. Physiology and pathology are, indeed, but two branches of essentially the same science. My object is to ascertain the truth respecting brain functions, and not to dispute which line of inquiry has yielded, or is likely to yield, the most satisfactory data.

The localisation in the brain of any mental faculty, if once proved, will become the foundation on which mental science will have to

be constructed. Let the ultimate decision be what it may, every anthropologist cannot but take a deep interest in a question on which hinge such important consequences. Physiognomy has not yet become a science; it now only consists of shrewd guess-work, and its professors do, perhaps, the cause of scientific inquiry as much harm as good. Physio-anthropology is, however, most undoubtedly the great science of the future. Should the mental faculties be localised in different parts of the brain, and should the practical physiognomist be able to discern their relative sites, then, and not till then, shall we become free from the assumptions of past and present ages, and have a solid foundation, on which we may confidently base a real science of Man. This subject requires students and not professors. Each student must look back to the past for such light as he can obtain, and this cannot fail to assist him in his future observations and reflections.

In attempting to give anything like an historical summary of the theories promulgated concerning the relations of the human body and mental phenomena to the localisation of the functions of the brain, it is necessary to go back at least three thousand years. This announcement need not, however, cause alarm. Many centuries will not occupy as many lines; whilst four or five centuries will, from want of material, be entirely passed over.

First of all, a few words on the Psychology of the Bible. Many learned works have been written on this subject; and if I cite only one, *The System of Biblical Psychology*, by Prof. Delitzsch,* of Erlangen, it is because I fully agree in what he says in his preface, that the psychology of the Scriptures need not feel ashamed in the presence of modern psychology. In saying I agree with him in this respect, it may hardly be necessary to state that I mean *pure* psychology.

In the psychology of the Bible, we meet with the tripartition of the soul, or a *trinitas mentis*, which pervades not only Greek, but, to some extent, modern psychology. Thus, the *ruach*, *nephesh*, *neshama* (breath of life), *leb*, spirit, soul, heart, represent the Hellenic *nous*, *logos*, *cardia*. The heart plays in Biblical, as well as in most heathen psychological systems, the chief part. There is, however this difference, that, in the Old Testament the heart is not merely looked upon as the most important vital organ, but as the organ of thought, volition, and as the seat of all emotions. The head and the brain scarcely find a place in the Old Testament. According to Delitzsch, the head, as the seat of the intellect, occurs only in *Daniel*:—"The dream and the visions of my head are these;" "Daniel had a dream and vision of his head;" "and the visions of my head troubled me."

* *System der Biblischen Psychologie*, Von F. Delitzsch: Leipzig, 1855; translated into English, and published by Messrs. Clark.

It is quite evident that the doctrines of Pythagoras concerning the soul, form the basis, not merely of the theory of the ancient, but of comparatively recent psychologists. He divides the soul into two portions, the rational soul and the irrational; the former having its seat in the brain, the latter in the heart. But other writers ascribe to Pythagoras the doctrine of a tripartite division of the soul, as we find it in Plato. The division consists in the portion peculiar to man, *phrenes*; the animal portion, *nous*, and *thymos*. Later writers divide the irrational soul into the *thymos*, into the concupiscent, and aversive or irascible portion; the latter having its seat in the liver, the former in the heart. This was, we believe, the first attempt to localise the mental functions in different parts of the body.

Hippocrates,* the celebrated founder of therapeutics, the immediate predecessor of Plato as an author, considers, in his treatise of the glands, the brain as a gland. "The head," he says, "has glands; the brain itself resembles a gland. It is white, it is separated in small masses, like other glands. It possesses the same advantages. . . . The brain is large, and lodged in the cranium, where it occupies much space. . . . When the brain is irritated, consciousness is lost, the brain becomes convulsed, and involves the whole body. Man can no longer speak. He becomes suffocated and falls into a condition called apoplexy."

Again, in his work on epilepsy, we find the following remarkable passages as regards the functions of the brain, showing that he deemed it the seat of all the mental phenomena:—"It is necessary to know that man has only pleasure, gaiety, laughter, by the brain. From the same part come also pain, trouble, and inflictions. By this part we are wise, intelligent, we see, and hear, and discern what is good and bad, what is agreeable or disagreeable. . . . It is by the brain that we fall into delirium and insanity, that we feel terror and fear by day or in the night, by dreams or errors of all kinds."

This, it will be admitted, is pretty strong language in favour of the brain being the seat of the so-called "mind," but it is neutralised by another strong passage in his book on the heart. "The human mind is placed by nature in the left ventricle, whence it governs the rest of the soul." It may, however, be stated that the treatises *De Glandulis* and *De Corde* are attributed to the son or son-in-law of Hippocrates, and there are doubts whether Hippocrates is the author of the treatise *De Morbo Sacro*.

Plato distinguished in man what is corporeal and mortal from the soul, which he considers an eternal and self-acting energy, acting upon the human body, which is only its passive subject. In its connection

* Born 460 B.C.

with the body, he distinguishes, in two parts, the rational soul, created by the Supreme God, and which is immortal, and the irrational, formed by the generated gods (the demons). But as the mortal cannot combine with the divine, there is required a *tertium quid*, a sort of middle term which connects them; this is the *thymos*. The rational soul, he contends, has its seat in the brain; the irrational, or vegetative soul, which needs food for its preservation, has its seat between the diaphragm and the navel; the irascible soul or the spirit (the intermediate link between the mortal and the immortal soul, $\theta\mu\sigma\ast$), has its seat in the heart. The liver, in which the thoughts issuing from the brain are, so to speak, reflected as in a mirror, is the seat of the faculty of prophesying. The spleen, which is closely connected with the liver, is a sort of reservoir of the impurities of the blood.

According to Aristoteles, the soul is the entelecheia of organic bodies. In plants, the soul works as a preserving and nourishing energy (*anima vegetativa*), as the plant has no other functions than nutrition and propagation. In animals, the soul becomes sensitive (*anima sensitiva*), whilst the human soul is, at the same time, vegetative, sensitive, and cognitive (*anima rationalis*). Man thus being the end of nature, exhibiting, in himself, the various steps of development in nature. But as all consciousness ceases with death, the soul has, after death, no personal existence; but the entelecheia exists only as a divine absolute force, which, combining again with an animated human body, renders it a rational man, but who has no recollection of a former existence.

Aristotle further says that the brain is a compound of water and earth; that it is the most bloodless substance of the body; that it produces no sensation when touched, and that, being extremely cold, it moderates the heat of the heart. When the brain becomes too moist or too dry, it either does not refrigerate the heart or congeal the humour. He places the sensitive mind in the heart.

Mr. G. H. Lewes says,† "Instead of conceiving life as one of the manifestations of mind, Aristotle taught the precise obverse, namely, that mind is only the highest development of life."

For many centuries the teaching of Aristotle was accepted as that most in accordance with Christian doctrines. Whether this be so or not, it is equally certain that the tendency of all modern inquiry and research is to again bring us back to this doctrine. Sensation, motion,

* $\Theta\mu\sigma\ast$ is differently rendered by translators, owing to the word conveying different meanings. Thus Schleiermacher renders it *Eifer* or *Muth*, zeal or courage; others translate it *heart* or *spirit*. In fact, under *Thymos* Plato comprises all the active mental faculties tending towards the formation of rational ideas.

† Aristotle, *A Chapter from the History of Science*, p. 225, 1864.

consciousness, and intellect, are now generally held to be in strict accordance with the development of nerve tissue and its consequent nervous force.

Mr. Lewes thinks, to use his own words,* that "there are one or two passages which raise a doubt as to whether Aristotle had made this point clear to himself in the sense in which it is held by the most advanced psychologists ; indeed, it is evident that he had but imperfectly appreciated the necessary correlation between an ascending complexity of organisation and an ascending complexity in vital phenomena, since he had not clearly and steadily mastered the fundamental relation between organ and function. Nevertheless, if he sometimes stopped midway, if he wavered in his conception of the relation between organ and function, the majority of moderns, even physiologists, have not been less wavering, and he stands at the point of view now generally occupied by the most advanced thinkers."

Erasistratus and Herophilus deserve a passing notice, as the founders of cerebral anatomy and physiology, and as the greatest ornaments of the celebrated Alexandrian School. We only speak here of Erasistratus as a cephalotomist, and his researches into the structure and functions of the nervous system. At first he believed that the nerves sprung from the *dura mater*, but on closer examination he discovered that they sprung from the substance of the brain. He moreover studied the convolutions and the ventricles of the human brain, and described and compared them to the brain of animals. Erasistratus assumed two kinds of spirits in the human body : the vital air, *pneuma zooticon*, resident in the heart, and soul, *pneuma psychicon*, resident in the brain. Some later authors also say that he distinguished between nerves of sense and of motion, and that he had a knowledge of the circulation of the blood.

Herophilus was probably a few years older than Erasistratus, and equally, if not more illustrious, than his contemporary. It is certain that he and Erasistratus dissected human bodies. Celsus says that Herophilus dissected the bodies of criminals alive, as is said of the anatomists of the sixteenth century. The most important discoveries of Herophilus relate to the functions of the nervous system. He considered the nerves as organs of sensation. That some nerves were subject to the will, and that these arose from the brain and spinal cord. He carefully dissected the brain, and the confluence of the occipital sinuses is still called *torcular Herophili*. He assumed four fundamental life forces : the nourishing (situated in the liver), the heating (heart), thinking (brain), feeling (nerves). In this respect he seems to follow Aristotle. So great was his reputation

* *Vide p. 224.*

that a great anatomist of comparatively modern times considered him infallible.

Galen was intimately acquainted with all the discoveries of his predecessors. He examined all the nerves, both as regards their origin and their termination. Thus he followed up the vagus to the lungs and the stomach, and made experiments on animals to prove the importance of that nerve in the production of the voice. He not only was very near describing the circulation of the blood (Hecker, Berl. 1811), but also very near the discovery of Sir Charles Bell in distinguishing the sensitive from the motive nerves. Galen derives from the brain all nerves for sensation, and from the spinal cord all motor nerves. Some nerves become, in their progress, motor nerves.

The organs of the rational soul are the brain and the nerves. The vital spirit, *pneuma zooticon*, has its seat in the heart and the arteries, and the natural spirit, the *pneuma physicom*, in the liver and the veins. The heart he, therefore, considered as the seat of courage and wrath, the liver as the seat of love. He rejects the opinion of Aristotle that the brain was subservient to the cooling of the natural heat of the heart.

As regards the mental functions, they are performed by means of the *pneuma*, which is prepared from the vital spirit, and is carried to the brain with the blood. Hence it is comprehensible how the soul changes with the body, and how all ideas and representations of the mind are merely the result of the disposition of the body.

Some place the chief part of the soul (what the Greeks call *ψυχονικος*) in the heart; others in the membranes of the brain; others in the brain itself. Hence they all differ as regards the special use of these parts.

One passage more, to show that Galen considered the brain as the organ of intelligence, must suffice.

The brain, as regards its substance, resembles that of the nerves, of which it is the organ, only that it is softer. This is as it should be, for it receives all sensation, all imagination, and conceives all intelligence, and is more easily affected; for what is soft is more easily affected than what is hard.

Avicenna* assumed three kinds of spirits in the body: the natural, the vital, and the animal. Each of these is produced from the vapour of the blood. He also assumed nine animal faculties; five of which corresponded to the number of the external senses from which the mind receives its sensations. He establishes one faculty which sets the muscles and the limbs into motion, and three other faculties which preside over the imagination, memory, and reasoning. Roger Bacon was, to a great extent, a follower of Avicenna.

* See J. Conr. Barchusen, *Historia Medicinae*, Amst. 1710.

Albertus Magnus looked upon the *sensus communis* as partly a particular sense which receives the forms of sensual objects, and partly as the common fundamental sense, the point of union of the sensations (consciousness). The mere capacity to receive impressions and forms of sensible objects is passive. The active power is distinguished in memory, imagination, and poetical force, which depend upon an internal spiritual organ. Albert assigns different spots in the brain as the seats of the above faculties. The *sensus communis* is situated in the brain, where the five senses terminate in a centre, and thus form an organ common to them all. Behind it is situated the faculty of imagination. Poetry has its place in the most central ventricle, and if this portion of the brain is injured, mania and rage are the result. Albert denied the world-soul, and the emanation of the soul from God. The soul is a simple, indivisible, unchangeable substance, which contains the principle of different faculties. The connecting medium of soul and body was the most imperfect part of the soul, and the most perfect of the body.

The revival of anatomy may be said to have commenced, at the beginning of the fourteenth century, with Luigi Mondini de Luzzi (*Mundinus* or *Mundinius*). Mondini's father was an apothecary at Bologna, probably the birth-place of Mondini; but in what year is not certain. We find him Professor at Bologna in 1314. In 1315, he publicly dissected two female bodies; and not long after published a treatise on anatomy, which became a text-book in the medical schools for nearly three centuries; for, at the end of the sixteenth century, it was the only text-book used in the University of Padua. This compendium (*Anathomia*) was probably the first anatomical treatise illustrated by woodcuts; and was held in such esteem, that deviations from his descriptions were considered abnormal. As to the work itself, every page shows that the author, even after personal inspection, cannot escape from preconceived opinions and theories.

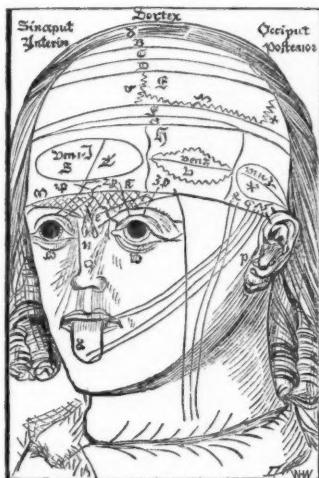
The first edition bears the title, *Anathomia* (sic) *Mundini præstissimorum doctorum, &c.* *Impressa Papaya, 1478, per Magistrum A. de Curcano.* This edition has no woodcuts. The illustration here



given is taken from the tract of Mundini published by Johann Ketham, in his work entitled, *Fasciculus Medicine compositus per excellentissimum artium ac medicine doctorem joānem de Kethem Allamanus. Venetiis, 1495.*

This work is remarkable for its excellent woodcuts, considering the period, and is generally held to be the first work illustrated by anatomical plates. One of the tables represents Mundinus lecturing in an anatomical theatre, surrounded by anxious students. A dead body lies on the table ready to be dissected.

Hundt (*Magnus canis*), born at Magdeburg (hence he is also called Parthenopolitanus) in 1449, studied at Leipzig, and became Rector of that University. He then took the degree of Doctor of Medicine, and subsequently that of Doctor of Theology, and became prebendary of the cathedral of Meissen, where he died in 1519.



Hundt* was one of the last famous Leipzig scholastics. He was equally distinguished for the extent of his knowledge as for his private character, and was the author of numerous works on grammar, philosophy, the canon law, and some of which were published.

The chief work of Hundt, which, even at present, is not without

* The anonymous author of a work, *Centuria Scriptorum Insignium*, etc., (ed. a Joach. J. Madero, Helmst., 1660, 4to, enumerates a great many of Hundt's writings.

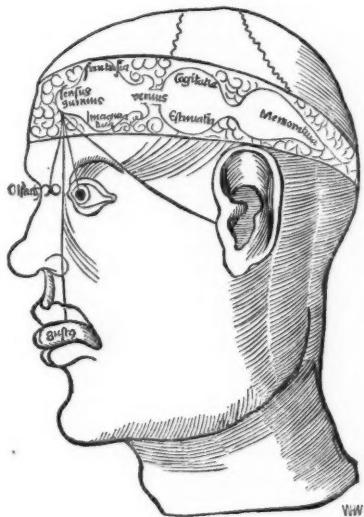
interest, both on account of its having given an impulse to the study of anthropotomy, and because of its being one of the first books published with anatomical woodcuts, bears the following imposing title, which we give at length:—"Anthropologium de hominis dignitate natura et proprietatibus, de elementis, partibus et membris corporis, de juramentis, nocumentis, accidentibus, vitiis, remediis, et physiognomia ipsorum, de excrementis et excrentibus, de spiritu humano ejusque natura, partibus et operibus, de anima et ipsiis appendicibus. Per Magnum Hundt Parthenopolitanum. Ingenuarum artium Magistrum in gymnasio Liptzensi. Ad laudem Dei et communem studiorum hominem utilitatem quam accuratissime ex philosophorum congestum. Impr. Liptzick per Baccal. Wolf. Monacensem 1501. 4to." There is no doubt that Hundt was one of the first authors of modern Europe who used the word anthropology; and this will be sufficient to cause him to be gratefully remembered by the future historian of anthropological science.



George Reusch, also called Gregorio Reisch, or Gregorius Rischius Carthusianus, was born about 1470-80, at Balingen, in Würtemberg. He subsequently became prior of the Carthusian convent at Freyburg, in Bresgau, and enjoyed great authority under Emperor Maximilian I, whose father confessor he was, and at whose death he was present.

The celebrated Dr. Johann Eck, the most violent opponent of the Reformation, went to Freyburg to study mathematics under Reisch.

It is singular that Reisch is scarcely mentioned in any of the biographical dictionaries, nor in encyclopædias; yet he must have been one of the most learned men of his time. His chief work, *Margarita Philosophica*, although consisting of only one volume, is a cyclopædia in miniature; and was, in fact, published later under the title of *Encyclopædia*, and one of the first books published under that name. This rare work is, as far as we know, the third anatomical book illustrated by woodcuts. Ketham's *Mundinus*, 1478, Hundt's *Anthopologium*, 1501, *Margarita*, 1503. The edition now before us is of 1508. We give the head, which is almost mapped as a phrenological bust of the



present day. The engraving has been published by several authors, but has always been attributed to Baptista Porta, whose work was not published till 1583. We have not seen it mentioned in Porta that the illustration, which is, in fact, a fac-simile, was taken from the work of Reisch. Ludovico Dolci published this figure in his Dialogues, in 1562, but the engraving is somewhat reduced, and the tongue is out. There is little or nothing to be learnt from these works besides what we learn from the engravings themselves. *Margarita* says the number of internal senses are five: common sense, imagination, estimation,

phantasia, or imagination and memory. The common sense is in the first portion of the anterior ventricle, as is also the power of imagination. In the middle ventricle is the estimativa, and in the posterior, the memorativa. The word *vermis* (worm) will probably puzzle many modern anatomists, if not scholars. As used by Mundinus, it means the worm-like passage between the anterior and the middle ventricle, so that the spirits may pass from one ventricle to the rest. In Dolci's figure the following explanation is given. Hortensius (in the usual dialogue form) says, as the teacher, "You see in this figure where is the common-sense, where is the imagination, where the estimative power, where the power of memory, and also where is smell and taste." Fabricius (the pupil) answers, "I see all this remarkably well, and everything is put in its proper place."

J. Baptista Porta was born at Naples about 1550. He was, to judge from his numerous works, a most erudite physiognomist, deeply read in the works of his predecessors. His chief book, *De Humana Physiognomia*, published in 1586, has been translated into many different modern languages. He closely follows Aristotle and Avicenna, and considers that the human face should be compared with that of animals. No part of the human body is passed over. The woodcut representing the human head, with the distribution of the mental faculties, is, as already stated, without acknowledgment, taken from the *Margarita Philosophica* of Reusch.

Andreas Vesalius was one of the first who tried to shake off the yoke of Galen. He was a pupil of the celebrated Sylvius, who afterwards became his violent opponent, and described him as a mad reformer, because he dissented from Galen. His greatest work (*immortale opus*, Haller), is his *De Humani corporis fabrica libri VII.* Basil, 1542." Burggraeve (*Etudes sur Vesale*) says, "Vesalius has not enriched anatomy, he has created it." This is doubtless an exaggeration; but there is no doubt that the anatomical illustrations of Vesalius' works, drawn by great artists,—probably by Johann von Kalcker, a pupil of Titian, if not by Titian himself—some say also by Michael Angelo—have been copied in almost all the anatomical works of the sixteenth century.

Of his physiology of the brain, we may merely mention that Vesalius well distinguished the grey or cortical substance from the medullary substance; he described the ventricles more correctly, denied that smell had its seat in the anterior cornu of the ventricle. He endeavoured to establish that the use of the ventricles was chiefly to act as reservoirs for the animal spirits. He described the choroid plexus, the septum lucidum, and the fornix.

Although the knowledge of the structure of the brain, and the dis-

tribution of the nerves greatly advanced, the old theory of Galen still prevailed, that the animal spirits were secreted in the ventricles, and that the blood, intermixed with vital spirits, was, through the gyri of the brain, poured into these ventricles for the production of the animal spirits.

Chenet says* : "The first internal faculty to which the species are carried by the spirits is called *sens commun*. This *sensus communis* does not mean what is vulgarly called common sense, natural sense, natural logic, as opposed to artificial logic as taught in the schools. Thus, we say a man is a sensible man, which is synonymous with a clear-sighted, a reasonable, or rational man. The school-men, following Aristotle, say that *sensus communis* is the centre, where all the reports of the external senses are carried to."

Speaking of imagination, he says :—

" The images being brought by the spirits (nerves) to the interior ventricle of the brain, excite the faculty which here resides. It is called imagination because it receives and discerns the images of all external senses. It is for her that memory preserves the images, to give them back to her for making new representations. The Greeks called it phantasia. Aristotle derives this term from a word signifying light : light standing in the highest relation with the sensitive soul, which resides in the brain. Imagination, some say, is the action of the imaginative faculty. This faculty is, properly, what people call *esprit*, or, as the Romans called it, *ingenium*. As the mind can have no new *sensation* but by the intermedium of the senses, which originally is due to the motion of certain fibres, its *reproduction* by the imagination depends still on the motion of the same fibres.

" All accidents which affect the body may weaken and destroy the imagination and the memory. Both have, therefore, their seat in the body.

" The sensory fibres are so constructed, that a more or less continuous action upon them by objects produce more or less durable determinations, which constitute the *physic* of memory.

" The condition of the fibres upon which an object has acted is no longer the same as it was before ; but the fibres have been modified. It is impossible to say in what this modification consists. The tenacity of memory depends on the special disposition of the elements to retain the determinations imprinted upon them. An intelligence fully acquainted with the whole mechanism of the brain could read it like a book. The prodigious number of minute organs appropriated to sensations and thoughts would be, for such an intelligence, what, for us, are printed characters. We turn over the leaves of books ; we study them. The aforesaid intelligence would merely contemplate the brains.

" I say nothing of *traces* and *delineations* in the brain which are so

* *Traité de l'esprit de l'homme*, par le Sieur Chenet, Paris, 1649.

gratuitously assumed when the question is of memory. I confess I can form no idea of this, and consider it, therefore, more philosophical to admit that the same organs which, acted upon by objects, yield so diversified perceptions, are so constructed that their constituent parts receive from the action of objects such modifications, whence results a tendency to move in a certain direction from habit."

Imagination, he contends, resides in the fore-part of the brain. He gives a variety of reasons, the chief being that, after a strong effort of the imagination, we feel a lassitude, and considerable heat in the forehead. He, however, cautions his readers not to think that the imagination resides in an indivisible point of the brain, or is attached to a single spot, but its locality is more extended. "*Anatomy*," he observes, "*shows that the brain is composed of a number of small organs, we see dispersed in different parts of the brain, though we may not know the use of these different parts.*" The date of this, it is well to remember, is 1649, or a century and a-half before the time of Gall. Our author then proceeds to the organ of *memory*. He is afraid that he may be accused of using improper terms in attributing an organ to memory, which has no action, and is, properly speaking, no faculty. Be that as it may, it has a passive instrument, a particular portion of the brain where the species are arrested and fixed.

"I hold," he says, "with the common opinion that this part is the cerebellum. The proofs are, certainly, not so very strong in favour of this theory as I should wish. Still, they seem probable and must be accepted. I find them contradicted only by one surgeon, who boasts of having removed the cerebellum without any disorder of the intellect intervening. But this surgeon seems to belong to that class of vainglorious operators who brag of having removed large organs when they have only removed a few atoms. If he had simply said that memory had not suffered, I might have believed him; but to say that no faculty whatever was damaged, is to say that nature made an organ of no use. I believe, on the other hand, an author worthy of belief, who states that he found the cerebellum absent in a man who, during life, had little or no memory. What a marvellous composition must have, then, that organ which is the direct instrument of our mental operations! What would be our delight if the mechanism of this masterpiece of the Omnipotent were displayed before our eyes! We should behold in this organ a little world; and if it belonged to a Leibnitz, this little world would be the abstract of a universe."^{*}

* The celebrated Hooke, on the supposition that an idea may be formed in twenty trecses of time, found that a man would, in one hundred years, collect 9,467,280,000 ideas, or vestiges: and if we were to reduce this sum to one-third on account of sleep, there would still remain 3,155,760,000 ideas; and supposing that there are two pounds of medulla in the brain, one grain of this medulla would have 205,452 vestiges (*Phys.*, Haller, t. v, lib. xvii, § vi). Much more wonderful would it appear when the vestiges, of which Hooke speaks, only reside in a very minute portion of the brain, and not in a considerable mass of this viscus. We might as easily apply it to one grain of this mass. Our imagination cannot seize such objects.

These views of Chanet, more than two centuries old, are both interesting and important. They illustrate the truth of the maxim, that "there is nothing new under the sun;" and demonstrate, if any such proof were needed, that the theory of the localisation of the functions of the brain is not a new discovery. It is, however, of less importance to the student of science to know whether it be new provided it be true.

There is a manifest disadvantage in treating a subject like the present in detached portions. Although, however, it has its drawbacks, it is really at present the only practical way of at all successfully treating the subject in hand. The question of the localisation of brain function is growing from day to day; for no sooner is a work published giving the latest results, than it seems out of date. I purpose, in this series of articles, to give a general sketch of the whole subject, with a digest of the present state of the controversy respecting the localisation of one of the mental faculties; and we shall then be better able to continue to give, from time to time, new facts that may be acquired either for or against this important theory.

[*To be continued.*]

ON THE MEASUREMENT OF CRANIA.*

By JEFFRIES WYMAN, M.D., Hersey Professor of Anatomy in Harvard College, and Curator of the Peabody Museum of Archeology and Ethnography; Corresponding Member of the Anthropol. Society of London.

TIEDEMANN appears to have been the first to attempt anything like an extensive comparison of human crania based upon their capacity.† To this end, 1, he weighed the skull without the lower jaw; 2, filled the skull with dried millet seed and weighed again; 3, deducting the weight of the skull he obtained the weight of the millet seed filling it. Thus a means for determining the comparative size of the cranial cavity in different individuals or races was obtained, but it failed to give any exact idea of the volume of the brain. The method proposed by Sir William Hamilton was more successful; he filled the cranium with fine sand which was measured in cubic inches; having determined the weight of a cubic inch of sand, he multiplied this by the

* Extracted from the *Proceedings of the Boston Nat. Hist. Soc.*, vol. xi, 1868.
† *Philos. Trans. of the Royal Society of London*, 1836, p. 497.

number of cubic inches contained in the skull, and making a correction for the difference in the specific gravities of brain and sand, the weight of the brain was approximately reached.* Prof. D. Treadwell has proposed a somewhat similar, but more simple method than this; it consists in determining, by any given method, the capacity of the skull in cubic inches, multiplying this by the weight of a cubic inch of water, and correcting for the difference between the specific gravities of brain and water, we have, as in the other case, cubic contents converted into brain weight.† The method proposed by Prof. Treadwell has an advantage in the fact that the weight of a cubic inch of water (252.5 grains, or 16.4 grams) has been determined with great accuracy, and is a constant quantity; while that of a cubic inch of sand varies according to locality, requiring a fresh determination each time a different kind of sand is used.

The nature of the material used for measuring the capacity of the skull is important, but observers have had recourse to very different kinds. Water would unquestionably be the best, but its use is impracticable owing to the great difficulty in making the cranium sufficiently tight to retain it. The late Dr. Samuel George Morton, having used white mustard seed "on account of its spherical form, its hardness, and the equal size of its grains," afterwards, at the suggestion of Mr. J. S. Phillips, substituted No. 8 shot, which he found to give much more precise results, and with these all the measurements recorded in his tables were made.‡ Sir William Hamilton sharply criticises Dr. Morton's method as "only a clumsy and unsatisfactory imitation of mine," asserting that "pure silicious sand was the best means of accomplishing the purpose, from its suitable ponderosity, incompressibility, equality of weight in all weathers, and tenuity."§ Dr. J. Barnard Davis, whose practical knowledge of the subject makes his opinion worthy of high consideration, also recommends the use of fine sand,|| but instead of measuring he weighs the quantity the skull holds. Having ascertained the cubic measure of an ounce of sand, the whole quantity is readily converted into cubic inches, or, by making a correction for difference in specific gravity, into brain weight. Various other substances, such as peas, flaxseed, rice, &c., have been used. Welcker recommends the grains of husked wheat. For a full account of these and of the different methods of comparing crania, the reader is referred to the valuable and instructive memoir of Dr. J. Aitkin Meigs, on the Mensuration of the Human Skull.¶

* *Lectures on Metaphysics and Logic.* Edinburgh, 1860. Vol. i, p. 240.

† *American Journal of Medical Science,* in the account of the last illness of the Hon. Daniel Webster. January, 1853.

‡ *Crania Americana,* p. 253.

§ *Op. cit.*, vol. i, 1240.

|| *Crania Britannica.*

¶ *North American Med.-Chirur. Review,* September, 1861, p. 837.

From the following table, the result of careful comparative experiments, it will be seen that, for exactness, shot are far preferable to sand, and that Sir William Hamilton's criticisms are unjust. The chief requisites for a good material for measuring crania, are lightness and uniformity in the size of the particles or component bodies; the size should be such that they will not escape from the foramina in the orbit, and their shape such that they will occupy the smallest compass with the least amount of shaking or compression. All these conditions were very nearly found in peas, and, with the exception of lightness, were realised in shot, the diameter in the second case being about 0.18 inch, and in the first 0.23 to 0.25 inch. Shot have the advantage over all other materials in their spherical shape, but their weight is such that fragile crania would be destroyed by them, though they may be safely used with those of ordinary strength. A skull having a capacity of ninety cubic inches when filled with shot weighs more than twenty pounds, which is altogether too heavy a mass to handle when many crania are to be examined.

With the view of determining the relative value of different materials, one and the same skull was measured eight times with each of the different kinds mentioned at the head of the columns of the table. The cranium was filled with a given material, which was well shaken down and compressed until no more could be received. The contents were then poured into a measure, care being taken that this should be done in each case at a uniform rate, but *without* being afterwards shaken or pressed down. The measure used was a litre, and the measurements are noted in cubic centimeters.

	Peas.	Shot.	Beans.	Rice	Flaxseed.	Coarse Sand.	Fine Sand.
1	1190	1200	1210	1220	1250	1250	1315
2	1190	1205	1210	1222	1250	1260	1320
3	1190	1205	1210	1220	1240	1250	1290
4	1195	1200	1205	1220	1255	1260	1290
5	1198	1200	1210	1215	1250	1270	1320
6	1190	1200	1200	1220	1250	1250	1290
7	1195	1200	1205	1225	1240	1260	1350
8	1196	1205	1200	1220	1245	1260	1330
Average.	1193	1201.8	1206.2	1220.2	1247.5	1257.5	1313
Range.	8	5	10	10	15	20	60

From this table, it will be seen that the skull being carefully filled in each case, its capacity apparently varied according to the different substances used in the measurement; with peas it was 1193 c. c. and with fine sand 1313 c. c., or 120 c. c. more. This difference depends

upon the fact that the substances used, under similar circumstances, adjust themselves to the least space with different degrees of facility. Shot and peas having a spherical shape, the position in which they happen to fall is a matter of indifference, since all their diameters are equal. The other bodies, whose diameters are unequal, require more or less of shaking and pressure in order that they may be packed in the smallest compass and thus an exaggeration of the capacity avoided. With proper care correct measurements can of course be made with either of the materials mentioned in the table, and in practice no one would omit to shake down and compress the material in the measure to the same degree that he would in the skull. The object of the table is only to show the comparative amount of compression and adjustment required. To present the subject in another way, if a litre is filled with peas, and then shaken, it will diminish one per cent. in bulk, while, under similar circumstances, coarse sand diminishes fifteen per cent. In the first case the error will not exceed one per cent.; in the second it may be, unless great care is taken, much more. Of the different substances used, peas and shot, on account of their spherical shape, give the best results, and coarse and fine sand the worst, on account of the irregular shape of the grains, the small size of these, for the finer the material the greater the error, and the roughness of their surfaces. As to peas and shot, the last give the most accurate and uniform results, while the latter, being less perfect spheres, lead to a slight error, but have the advantage of lightness, thus making manipulation, more easy. Sand has the further disadvantage of filling many angles, canals, and foramina not occupied by brain, and therefore of exaggerating the quantity of this last, and in requiring that the foramina in the orbit should be plugged to prevent its escape. This last objection is of little moment when a single skull is to be measured, but is considerable when the number is large. By using bodies of the size of peas or shot, the inconvenience and the exaggeration are both avoided. The difference in the table between the amount obtained by measuring with peas and shot depends upon difference in the size of the two latter.

There is still another step to be taken, even if an exact measurement of the cranium has been made. The brain, as already stated, does not fill the cranial cavity; a space, variously estimated, is occupied by the membranes and the vessels, which should be deducted from the general internal capacity. Welcker estimates this at from 11.6 to 14 per cent. of the whole cavity, according as the skull varies in size. Dr. J. Barnard Davis makes a correction of 10 per cent.

Brain, not cranial measurement, is, of course, the object of the study of the capacity of the skull; but until some definite results are ob-

tained, which will enable the observer to make accurate corrections, we must remain content with cranial measurement for the present, and apply the corrections hereafter.

If we set aside shot as not well adapted to the purpose of measurement on account of their weight, a material suitable for equally accurate measurement is still a desideratum. Peas are not of a uniform size, though by sifting, uniformity may be approached, and there is a certain amount of error growing out of their want of sphericity, though this is quite small. Spheres of porcelain of the size indicated above, and still better of aluminium, on account of its lightness, would give the require qualities for accurate measurement.

The results obtained by various observers in making comparative measurements of crania point to one of the following methods as the most desirable.

I. *a.* Fill the skull and *weigh* the contained material.

- b.* Convert weight of material into cubic measurement by determining the cubic measurement of a gram or an ounce of material, and multiplying this by the whole number of grams or ounces. With proper tables, this would be a quick and easy process, but otherwise a tedious one.
- c.* Convert weight of material into brain weight by correcting for difference in specific gravity.

II. *a.* Fill the skull and *measure* the contained material.

- b.* Convert cubic contents into brain weight by multiplying the number of cubic inches by the weight of a cubic inch of water (252.5 grains), or the number of cubic centimeters by the weight of a cubic centimeter of water (one gram), and allowing four per cent. for the difference of the specific gravities of brain and water.

The second has the advantage of being the more simple process, and requires the fewest steps, while the first has the advantage in weighing, which is a somewhat more accurate method than measuring. The weight, however, must be converted into cubic measure, if we compare skulls by their cubic contents. With care, either of them is sufficiently correct, and in his choice the observer can and will be guided by his likings.

ON A CHARACTERISTIC PECULIARITY IN THE FORM OF
 THE FEMALE SKULL, AND ITS SIGNIFICANCE
 FOR COMPARATIVE ANTHROPOLOGY.*

By Professor ALEXANDER ECKER, Honorary Fellow of the Anthropological Society of London.

THE influences which, apart from intermixture, effect certain modifications—"disturbances" they might be called—are of various kinds. The most effective are, beside the artificial appliances for the purpose of altering the cranial form, pathological conditions, which give rise to premature synostosis, and thus produce forms which have frequently been mistaken for race-types. But individually, age and sex also modify in various manners the typical form of the cranium, and may, if they accidentally appear before us in a comparatively large number, cover or obliterate the typical form. Of these latter influences the most important, namely, those of sex, have hitherto been overlooked. The differences of the female skull from the male lie partly in the different quality of the osseous surface, and partly in the difference of the absolute, but specially of the relative size of the skull and its parts.

With reference to the first, the female cranium differs from the male by the same characters which distinguish the female skeleton from the male skeleton. First, we notice the lesser development of the processes serving for the attachment of the muscles in the skeleton, and with the development of which they keep pace. The difference is specially perceptible in the mastoid processes, the temporal and cervical line, and the ridges on the lower jaw. We further find that in the male skull the protuberances of the osseous cavities are more developed, as is seen in the superciliary arch produced by the frontal cavities. We may look upon this difference as similar to that greater development of the whole respiratory apparatus in the skeleton of the male, and I therefore agree with C. Vogt,† that the development of the superciliary arch must be considered only as an individual and sexual, and not as a race-character. The comparison of about 100 modern South-German skulls, presented in this respect the most striking differences. That in uncultured races individual differences obtain much less, is well known; and hence, sometimes may easily be taken for a race-character, which, with the progress of individual differen-

* This paper is translated from the *Archiv für Anthropolgie*.

† *Vorlesungen ueber den Menschen*, II.

tiation, is no longer so. Corresponding with the greater approach of the female skull towards the infantile form, the ossification points, the tubera frontalia and parietalia, are, as a rule, more developed in the adult female than in the male.

With regard to the dimensions, it has always been accepted that the female skull is absolutely smaller than the male skull; but accurate information, derived from a great number of measurements, we find, for the first time, in Welcker only.* We find, accordingly, that the horizontal circumference of the female skull to that of the male is = 96·6 : 100; the capacity = 89·7 : 100. With reference to the proportion of the skull to the rest of the skeleton in both sexes, we possess, to my knowledge, but few data by anatomists. Soemmering† says that in the male body, the head in proportion to the rest of the skeleton, is in weight = 1 : 8 or 10, and in the female, = 1 : 6, and that it is, therefore, relatively larger in the female. Accurate measurements are yet wanting; but the statements of artists‡ confirm it, and the entire habitus of the female agrees with it.

But what is more important for our object is the proportion of the cranium to the face as a whole, and that of the separate parts. Anatomical literature contains very little on this subject; and it is only very lately that Welcker has undertaken comparative measurements, and in his work, cited above, has delineated the differences of the male and female skulls by so-called cranial nets. But all peculiarities cannot be expressed in this way, and to show them is the object of this paper, which, it is hoped, will supplement the delineations of Welcker.

The characteristic physiognomy of the female skull consists, apart from the above-mentioned peculiarities of the surface and size, chiefly in the following characters:—

1. In the smallness of the facial parts in comparison to the cranium. That the facial part is smaller, has been already observed by Soemmering§ and Ackermann.|| Welcker points out the small jaws and large orbits. Artists have long noticed this circumstance. According to Schadow, the facial length (from the upper margin

* *Untersuchungen über Bau und Wachsthum des Menschlichen Schädels*, Leipzig: 1862.

† *Vom Hirn und Rückenmark*. Mainz: 1758.

‡ According to Schadow (*Polycl et oder von den Maassen des Menschen*: 1854), the female body has $7\frac{1}{2}$, and the male 8 lengths of the head.

§ *Anatomie*, p. 82.

|| *Ueber die Körperlische Verschiedenheit des Mannes vom Weibe ausser den Geschlechttheilen*. Coblenz: 1788.

of the orbit to the lower ridge of the chin) amounts in man to 5", in the child $3\frac{1}{2}$ ", in the female $4\frac{1}{2}$ ". The facial oval thereby appears in the female shorter, rounder, more child-like. The female character is in this, as in several other respects, approaching that of a child; woman, in fact, holds an intermediate position between man and child.

2. There is another peculiarity connected with this, to which Welcker has first drawn attention, and which belongs both to the female and the infantile skull, namely, the predominance of the cranial roof over the cranial basis. The proportions are, according to Welcker, as follows:—

(a). The *Linea naso-basilaris* (*n. b.*) (drawn from the fronto-nasal suture to the anterior edge of the occipital foramen) is to the whole length of the cranial vault in the male = 100 : 404; in the female = 100 : 421. According to my own measurements of a number of well-formed male and female South German skulls, the same line, putting the length of the whole arch = 100, was, in the male 27·1, in the female 26·7.

(b). As regards the transverse circumference of the calvaria, the proportion, according to Welcker, of the basal part of it (*Linea auricularis*, the distance between the edges of the zygomatic processes above the aural apertures) is to the upper part of the transverse circumference (measured with the tape from the above-mentioned point across the cranial arch) in the male = 100 : 245; in the female = 100 : 247.

(c). Finally, according to Welcker, the space between the frontal and parietal protuberances, called by him "the superior cranial square," predominates over the inferior cranial square (between the frontal and zygomatic processes) in women. The first-named space is to the latter in the male = 100 : 92; in the female = 100 : 83.

3. A third and, in my opinion, essential character, and which cannot fail to strike us at first sight, is the lesser height of the cranium. Welcker has also drawn attention to this. According to this author, the length is to the height of the skull in man = 100 : 37·9; in woman = 100 : 70·1.

Weissbach* also looks upon the lesser height of the cranium as characteristic of the female skull. According to my measurements of 25 well-formed male and female crania from the Black Forest,† the height and length index (length = 100) was in the male 83·9; in the female 79·4.

* *Beiträge zur Kenntnis der Schädelformen Oesterreichescher Völker.—Medic. Jahrbuch des Oest. Staats*, v. xx: 1864.

† Ecker, *Crania Germaniae*, p. 83.

4. This character of the lowness of the cranium becomes the more striking, as it is generally attended by another peculiarity, that of a greater flatness of the roof, especially of the parietal region. I find this character well pronounced in the majority of our modern native skulls, and also in the crania of old Franconian and Alemannic graves.* This difference in the latter appears to me still greater, as the male skulls frequently present a sagittal elevation, which is absent, or but insignificant, in the female skulls.

It might be interesting to ascertain whether in races in whom the sagittal crest is greatly developed, there obtains, in this respect, a difference between the sexes. I am led to think so. We have, in our museum, two skeletons of natives of South Australia, from the district of the Murray river, which I am indebted for to the kindness of a former pupil of Dr. Vogt, in Greenock (South Australia). Both skeletons belonged to young persons apparently of the same age. The cranium of the male presents a well-marked sagittal elevation, which is nearly wanting in the female. This observation is allied to the well-known fact that the female gorilla skull differs from the male by the absence of this crest, and other analogous facts.

5. From this predominance of the cranial roof over the cranial base, there results, among other facts, a form of forehead which is equally, if not more so, seen in the child, namely, a perpendicular position, which, in the latter, passing the perpendicular line, projects on the top. This straight frontal line imparts something noble to the female head; and, according to Camper's facial angle, the cranium of a new-born child occupies a higher rank than that of an adult; and so does, by the same measurement, the female cranium occupy a higher rank than that of the male. But whether this perpendicular frontal profile (which might be called orthometropy) is connected with a perpendicular position of the facial profile (orthognathism) is a different question. At first sight this certainly seems to be the case; to myself, at least, the majority of female skulls appeared to be distinguished by orthognathism. Weissbach also (*loc. cit.*) cites, besides the lesser capacity, the lowness, the smaller facial part, the strongly pronounced orthognathism, as a chief character of the female skull; but the measurements of Welcker (*loc. cit.*) are opposed to these views. According to these the female skull shows a stronger prognathism and a more stretched base (a larger sellar angle) than the male; and placed according to the size of the sellar and nasal angle, the skulls form a different series than when placed according to Camper's facial angle. According to the latter, they form a descending series: child,

* A number of crania marked by Davis and Thurnam (*Cran. Brit.*) as platycephalic, are manifestly female crania.

woman, man ; according to the former, man, woman, child. Welcker himself observes, however, on this point, that the predominance of the calvaria of the female over the cranial base (the absolute and relative shortness of the tribasilar bone), is in contradiction with these measurements, whilst the more stretched structure of that bone is in harmony with them.

6. From the preceding peculiarities, in connection with some others to be mentioned presently, there results, on the whole, a characteristic form, which will be better understood by a glance at the delineations* (fig. 27-35) than by any minute description. The flat vertex seems abruptly to pass into the perpendicular frontal line, so that the transition from forehead to vertex does not form an arch, but a slight angle. In the same way, though less pronounced, the flat vertex passes into the occiput by a kind of angular flexion. This, at least, is perceptible in our brachycephalic skulls, but certainly much less so in dolichocephalic skulls with developed occiput (e.g., the Scandinavian, or old Franconian and Alemannic skulls). I shall designate these angular transitions, the frontal and occipital angles. On comparing with this the profiles of characteristic male heads, we find the higher and arched cranium pass gradually, and in a gentle curve, into the forehead, and also the occiput.

For the better understanding, I give some outlines of well-formed male and female crania. Fig. 27 is the skull of a female, set. 20, from the neighbourhood of Freiburg, (copy of Tab. vi of my *Crania Germaniae*). Fig. 28, the skull of a woman, from a Franconian grave near Altlußheim, (*ibid.* Tab. xiii.) Fig. 29, the skull of a well-made man, from the Black Forest, (*ibid.* Tab. xxviii.) Fig. 30, a male skull, from a Franconian grave, (*ibid.* Tab. xxxvii.) I must also refer to Tab. iv, xvi, xxii, and xxvi, in my *Crania Germaniae*, which all more or less present the described form. There is also a skull of this form delineated in Davis and Thurnam's *Crania Britannica*, Tab. 30 (cran. of an old Roman female). I am inclined to think that the Roman skull, Tab. 36, is that of a female.* Less expressed is the female character in the female skull from an Anglo-Saxon grave of Long Wittenham (Tab. 47). To this belongs also the ♀ skull, Tab. iii, in Thurnam,† from the long barrows of Tilshead, the height and length index of which is only .65, and Thurnam draws particular attention

* We have allowed the references to remain, to enable the student to consult the original edition.

† Fig. 27, female skull (Black Forest); fig. 28, female skull (from Franconian grave).

‡ Thurnam "On the Two Principal Forms of Ancient British and Gaulish Skulls"—*Mem. Anthropol. Soc. of London*, vol. i.

to the flat depressed vertex. In the same treatise, p. 18, there is a drawing of a female skull from the Meudon dolmen.*

The characteristic cranial profile described above may also be seen in living, especially handsome, female heads; and whosoever has once paid attention to these peculiarities, will generally find them. I add, in confirmation of what has been said, in Fig. 31, an outline of the profile of the head, the skull of which is drawn in Fig. 27, in which, compared with the figured female skull, the profile perfectly agrees. We need not be surprised that we do not find this female type equally pronounced in every head, just as little as we find in every male figure the masculine habitus. But that this form occurs so well pronounced in heads which we designate beautiful and womanly, proves that this form is typical for the female sex.

As may be expected, we find the treated-of differences in the male and female skulls as regards the profile rendered by art. The comparison cannot, in the antique heads, be easily instituted, on account of the hair-dress.† On recently visiting the Museum of Antiquities of Carlsruhe, the female cranial type appeared to me well pronounced in some modern plaster works, as in the head of Victoria, by Rauch, Helena, by Canova; the Three Graces, by Germain Pilou; a female head of Sabine Steinbach, &c. But I find that the characters I have dwelt upon are best marked in Flaxman's illustrations to Homer's Iliad and Odyssey, and to the tragedies of Æschylus, based upon an accurate study of the antique. I adjoin some outlines for comparison. Fig. 32, a female head (Æschylus, "The Suppliants," tab. iv); fig. 34, the head of Venus (Iliad, tab. xxxvii); and fig. 35, a male head (Iliad, tab. ii.)‡

On comparing the female cranial profile with the infantile, it is undeniable that they nearly approach each other; and what the proportional theory of artists and the measurements of Welcker teach us, namely, that the female skull in its proportions stands intermediate between the male and infantile skull, is equally correct with reference to the proportion we have treated of. The infantile skull shows the same height and length index as the female, namely, 70·1 (Welcker, *loc. cit.*, p. 67); the angular transition of the flat vertex into the perpendicular forehead is very plainly seen.

The question might, therefore, very properly be raised, whether the

* Fig. 29, male skull (from the Black Forest); fig. 30, male skull (from a Franconian grave).

† The observation of Welcker (*loc. cit.*, p. 66, note 2) I consider perfectly correct; I nevertheless believe that the object of the hairdress in the masculine-looking female crania was to give more elevation to the vertex, rather than the shortening of the longitudinal diameter.

‡ Figs. 32, 33, 34—32 to 34 female profiles; fig. 35, male profile.

female skulls described by me were not all belonging to very young subjects, and that they present that particular form, not because they were female skulls, but because they belonged to young girls. I at first raised that objection myself, but it was soon refuted by the fact that I met this form in skulls of all ages. The female type prevails through the whole life, or, expressed in other terms, the female type arises therefrom, that the infantile type persists beyond the limits of infancy.

That the knowledge of the cranial contour described in this paper, as conditioned by sex, is not without importance in researches of comparative and historical anthropology, can scarcely be contested. I have already, in another place (*Crania Germaniae*), expressed a conjecture that probably most of the skulls which induced the Swiss naturalists, His and Rütimeyer, to establish their *Belair-type*, were female skulls. With reference to other peculiarities of the female skull pointed out by Welcker, I shall not enter upon here, as they have no direct relation to the peculiarity of the cranial contour treated of in this paper.

The anatomical conditions of the female skull to which I wished to draw attention, may be summarised as follows:—

1. The slight elevation of the cranium.
2. The flattening of the vertical region.
3. The perpendicular forehead, the result of the predominance of the cranial roof over the cranial base.
4. The peculiar (No. 6) described form of the cranial contour, a consequence of the peculiarities described in Nos. 2, 3, and 4.

LESLEY'S ORIGIN AND DESTINY OF MAN.*

THIS book, which proceeds from the pen of an American writer, deserves our attention, although the extensive range of subjects it embraces prevents our treating fully of its contents. A difficulty of another kind moreover presents itself. Mr. Lesley's work is entitled "Man's Origin and Destiny," and we naturally expect to find the author's final conclusions embodied in a chapter on Man's *destiny*, as deduced from principles established as to his origin. This chapter,

* *Man's Origin and Destiny*. By T. P. Lesley, Member of the National Academy of the United States. London : N. Trübner and Co., 1868.

however, for the reasons stated in the preface, was never written, and we are left to ascertain these conclusions from expressions scattered throughout the work. We find it stated in the chapter headed "The Four Types of Religious Worship," that "the highest type of the religious idea is Pantheism," in some theory of which "the investigation of God by man's understanding has always resulted." But "the common instincts of man oppose his progress in that direction. He requires a personal God, to whom to fly in joy and sorrow." This worship is, however, according to our author, idolatry. "Youth and women—three quarters of the human race—are idolaters by natural necessity." The contradiction here is only apparent. Idolatry is merely one of the phenomena attending the progress of mankind towards perfection, and if the object of its worship is a false one, no less false is the philosophic idea of God expressed in Pantheism. There is something in God which escapes even the philosophy of Pantheism. The progress of science is, however, to "clear away from men's eyes the errors of the past, and lead them unto that liberty of spirit which is due to Christianity." We thus see that the destiny of mankind is a state of perfection, and also that Christianity has been an essential instrument of progress towards that state. As to individual man, he is "of a supernatural nature, of a spirit which we believe to be immortal, self-conscious, self-studious, inventive and creative, open-eyed, and tongued for speech, responsive to all mysteries, and destined for all glories." We see here faith in the future of both the human race, and of the individual man. But, to Mr. Lesley, orthodox Christianity is only a system of "thunder-and-war-providence worship," whatever that may mean. Christ has certainly come, and He is "the very incarnation of the Deity," but nevertheless he is merely another circle in the spiral of evolution—"the flower of the long development."

These are Mr. Lesley's conclusions as to man's destiny, and we will see how far they are supported by his reasoning. As to his classification of the sciences, we need say little beyond expressing our opinion that a science of autobiography, which Mr. Lesley thinks ought to be included, is neither possible nor desirable. Not possible, because the influences on which man's condition depends, are so subtle in their operation that the laws which govern them cannot receive a scientific formulation. Not desirable, because a biography constituted on strictly scientific principles would be of all books the most uninteresting. Mr. Lesley himself says that "the greatest of fools, Boswell, wrote the most delightful of biographies." While demurring to this hasty estimate of Boswell's character, we would ask Mr. Lesley whether it was not because Boswell was somewhat foolish that his life of Johnson is so readable?

We have next a chapter on "the Genius of the Physical Sciences Ancient and Modern." The difference between them, according to Mr. Lesley, is that in modern science *fancy* is replaced by experiment. This is no uncommon opinion, but, without qualification, it is by no means true. Experiment is enlarged observation, and it cannot be asserted that the ancient philosophers had no observation. On the other hand, experiment without fancy is impossible. Fancy suggests what experiment proves. The utmost that can be said against the ancients is that they did not put their fancy to the most perfect test observation can supply—although even this is by no means certain. Inventions in which we have the application of scientific principles must be tested by experiment. The great fault of the ancients was the insufficiency of their scientific data. This fault, however, was not theirs, but that of the age in which they lived. The Indo-European race, the only one to whom the formation of science appears to be possible, was then still in its infancy, and in this we have the true explanation of the imperfection of ancient science. Mr. Lesley sees in the formation of the nebular hypothesis, of which the genius is evolution, the highest triumph of modern scientific theory. In the hands of Mr. Herbert Spencer it cannot be denied that the doctrine of evolution is of the utmost value, but it must not be concealed that its full truth is far from having received that strict proof which it will require before it is accepted by its opponents. The nebular hypothesis requires a gigantic assumption to begin with. "That space was originally full of homogeneous matter obedient to the laws of physics," and it requires, moreover, "great movements beginning or re-beginning in this unformed, but living, infinite, centres of growing aggregation, and tendencies towards those centres."

One of the chief difficulties of the doctrine of Evolution, is to account for movements, aggregations, and tendencies in homogeneous masses. This difficulty, with others that arise at various stages of its progress, may be overcome, but they seem to point to a source of disturbance not taken into account, and which may require considerable modification in the hypothesis itself.

In the chapter on the "Geological Antiquity of Man," Mr. Lesley gives a very fair *résumé* of the facts from which that antiquity has been deduced. No one, not a mere creature of faith, can doubt that the proof of this antiquity is an accomplished fact. The conclusion that man has existed on the earth for hundreds of thousands of years, is irresistible in the light of modern sciences. We cannot hope to measure the period according to conventional notions of time; we must be content to measure it by geological ages, the exact length of which will possibly ever remain uncertain. If the existence of man

in the middle Tertiary period, inferred from the discovery of bones split longitudinally in Miocene deposits, be established, all estimations of man's antiquity, founded on calculation of the age of the Mississippi deposits, will be left far behind. The ante-glacial epoch of M. Renevier must be extended to embrace probably the whole of the Tertiary period, human remains referable to the earlier portions of which must be sought for in the tropical regions of the southern hemisphere.

Notwithstanding this conclusion as to the antiquity of man, we think Mr. Lesley is rather too severe on those modern clergymen who still adhere to the Mosaic cosmogony. There may be "no alliance possible between Jewish theology and modern science," but if so, no better reason can be found why the orthodox christian should reject the conclusions of modern science, on the very fair ground that orthodox christianity is founded on Jewish theology, to reject which, therefore, is to reject Christianity itself. Not the Christianity of Mr. Lesley, but that which supposes Christ to have come into the world to save mankind from the effects of Adam's sin in Eden. The fall is the central doctrine of Christianity, and it was impossible, if man was at his origin a primitive creature, something between an ape and a man, who emerged into existence upwards of a million of years ago, instead of being a perfect man, created spontaneously only about six thousand years since. How much less possible can the fall be, or rather its universal effects as supposed by Christianity, if there have been not one but many Adams, as required by the doctrine of plurality of man, advocated by Mr. Lesley. We certainly do not apologise for the dogma of the fall, but we think modern clergymen, who refuse to accept scientific doctrines utterly incompatible with it, are, to say the least, entitled to a considerable amount of forbearance in our judgment of their conduct.

In the chapter on "the dignity of man," we have Mr. Lesley's views on the ape origin of man. We quite agree with him that, "No open mind can help imbibing the spirit of the theory of development," and that the law of differentiation laid down by Mr. Herbert Spencer is of the utmost value in explaining how that development has proceeded. Whether, however, the development theory can be enforced without any transcendental reference, as Mr. Lesley asserts, is another question. It may be true that "in geology there must be some explanation for all the phenomena of paleontology," so far as is implied by the further statement that "if there be an apparent advancement and ennoblement of living forms through the ages, it must be dependent in some reasonable manner upon some slow advancing movements in the physics of the globe, with which the living forms must stand in amicable harmony." Man *could* appear on the earth only at

a certain epoch. But *why* should he appear at all? This question cannot yet be said to be satisfactorily answered by the theory of evolution. It does, indeed, assert that at a certain conjuncture in the world's history, man, as the product of the coincidence of certain natural conditions, *must* have appeared. Man is the final product of the operation of nature's laws. This may be so, but the theory of evolution does not furnish any proof that the operation of nature's laws can have this marvellous effect.

Mr. Lesley finds no difficulty in accepting the ape origin of man, but we fear the arguments he furnishes in support of it will not be deemed convincing by those who have hitherto rejected the doctrine. These arguments are chiefly those used by Professor Huxley. A relationship between the man and the ape is certainly established. But *what* relationship? Whatever the presumption may be as to the *descent* of man from the ape, we fear it must be admitted that there is as yet no proof. The ingenious argument of Professor Huxley, derived from the fact that the largest ape brain approaches the smallest human brain much more nearly than the latter does the *largest* human brain, proves nothing. The highest and lowest human brains are connected by others of all intermediate capacities, whereas there is no connecting link between the brain of the Hottentot and that of the Gorilla. Professor Huxley admits, moreover, the importance of the fact, that "there is a very striking difference in absolute mass and weight between the lowest human brain and that of the highest ape." He does not, however, think that the increased size of the brain will at once explain man's superior intellectuality. He, therefore, introduces the influences of an "*inconspicuous structural difference*" in the organs of speech. This, however, but increases the difficulty of the question, since we have now to account, not only for the larger brain with the accompanying gap between man and ape, but also for the difference in the glottis. Let us add, what is too often lost sight of, that these peculiarities of man's physical structure are accompanied by a *general* increase of muscular and nervous refinement which also requires accounting for. Supposing the brain of the gorilla were much larger than we now find it, and that there were no such "*structural difference*" as Professor Huxley supposes, would the gorilla *speak*? articulate speech being, according to Professor Huxley, the "*grand distinctive character of man*." In the absence of a *general* refinement of the ape muscular and nervous organisations, we think not. But mere articulate speech is *not* a distinctive character of man. Without this speech, nevertheless, man would not be man, and his possession of it can be accounted for only on the same grounds as those which explain the origin of his general refinement of physical structure,

both nervous and muscular. When Mr. Lesley says that *language* is no criterion of man's superiority, "for every animal has a language of its own," he misstates the question. No animal but man has naturally articulate speech, and all men *have* this speech. The argument that the difference is only one of degree will not apply here, as articulate speech is not what Mr. Lesley calls "language," although founded on it. The same must be said of the human *smile*, which possesses an element which no animal laugh can claim. Religion, too, although founded on the same principal of love as that shown by the dog for his master, has in its *reverence* something totally unlike the latter emotion. In all these human attributes, which are as much distinctive of man as articulate speech, not the result of imitation itself, we see the operation of one and the same principle of intelligence. It may be that these are all dependent merely on the superior physical structure which also distinguishes man. The existence of this superiority has, however, itself to be accounted for, and we have already pointed out that the theory of evolution is not yet competent to do this, and we doubt even whether the principles laid down by Mr. Herbert Spencer may not be made themselves to support the opposite opinion.

On the important question of the unity or plurality of mankind, Mr. Lesley is a disciple of Carl Vogt. The threefold division of human races agrees well with the existence of three types of manlike ape, each of which, according to Mr. Lesley, has striven "to reach the human ideal, but on different sides of the common development." The objection urged against this view on the ground of the non-existence of intermediate forms between these apes and man, has relation rather to the ape *origin* of man than to his descent from one or several apes. One of the replies to this objection, however, requires notice. It is that the most ancient skulls yet discovered are so degraded "that we may be reasonably excused for suspecting that the early races of mankind were further removed in the order of development from the noblest races now existing, than the apes are removed from them." If, however, this were so universally, whence the necessity for man of more than one ape ancestor? If the influences of external nature are sufficient to cause the evolution of an Indo-European out of a chimpanzee, they would be amply sufficient to develop him out of any form of primitive man. The chief argument in support of the three-fold ape origin of man is the great diversity between the three principal races of mankind. But at the point where they each issue out of the ape ancestor, these races cannot have had nearly so great a diversity. The idea of Mr. Lesley that the races of mankind appeared on the earth successively—"the black and

meagre races first and the white races last"—renders the plurality of man's ape origin still less likely. For if man once existed there could be no necessity in nature to revert to the ape type for the origin of a superior race of men; and that there was no such reversion is rendered almost certain by the existence throughout the earth's surface, at a very remote date, of a low human type similar to the Australian.

Mr. Lesley escapes another difficulty, arising from the existence of an almost endless number of sub-types of man, by ascribing their origin to the crossing between the three chief races. Many anthropologists, however, deny the possibility of effectual crossing between different races, and if the plurality of man's origin be once admitted there is no apparent reason for limiting his ape ancestors to *three*, or even a dozen. This question of change, whether by crossing or otherwise, is a most important one, and appears to be as far from being settled as ever. According to Mr. Lesley, "civilisation is the flower of migration," and we think that the *mixture* which has resulted from migrations must have had a vast effect on the constitution of human races. It may be that peoples have been thus affected without actually losing their racial type, however much it may have been modified. There is undoubtedly, however, another law at work, that of *segregation*, insisted on by Mr. Lesley. Peoples having affinity display a tendency to segregate, and the longer this is continued the greater is the tendency towards a fixity of intellectual phenomena. Should there be a disruption of the ties which bind together such a people, a migration is the result, which usually gives renewed activity to the mental forces of all the peoples who are thus brought into contact. It is clear, however, that in the early ages of man this result of migration can have been very limited, and when all men were equally barbarous, it must have been almost nothing. The principle of *mixture* of peoples, therefore, does not require an original plurality of races. This must be established on other grounds. The facts cited as to the change undergone by Europeans in North America are interesting and valuable if they can be relied on. Mr. Lesley declares that "there is not even a well-marked class of society in the United States" to answer the description of the so called "Yankee" type given by M. Pruner Bey. On the contrary, there are nearly half a dozen *varieties* of man in New England alone, descendants of European varieties.

The doctrine of an original plurality of races, requires that the influence of race should finally predominate over all other influences. One of the strongest objections, however, to this doctrine arises from the difficulty in identifying the descendants of the several primitive stocks. Mr. Lesley has not been very successful in overcoming this difficulty, judging from his classing the Berber with the dark or

African race, as distinguished from the white or Aryan race, to which Mr. Lesley asserts the Semites belong. We have always supposed that the Berber belonged to the Semitic stock, being one of its oldest branches. On the other hand, it is becoming more and more recognised that the Semite is intimately allied to the African family. It is clear that colour alone cannot be accepted as a criterion of race.

In the chapter "On the Early Social Life of Man," Mr. Lesley gives a *résumé* of the facts known as to the social condition of the early inhabitants of Europe. The conclusion Mr. Lesley arrives at, is, that although primitive man was not an idiot, he was merely an animal. The facts, however, do not bear out this conclusion; an animal has not *inventive* genius because he *imitates* the customs of mankind. The dove-tailed door and the plaited cloth of the old lake-dwellers, were the inventions of men who displayed the same faculties of observation and thought as ourselves. No doubt "when the earliest races of mankind appeared, they appeared in the form of fishing and hunting savages, the form most in harmony with the physical condition of the greater part of the earth's surface at that time." But this is the state in which many tribes still exist, and among them all we find the most ingenious contrivances for attaining certain ends required by the limited phase of their civilisation. All savages are, to a certain extent, able to control nature, and make her subservient to their own purposes. This, indeed, is the fundamental ground of superiority of man over the animal world. Without this power man would never make any advance towards civilisation, and for want of it the animal *has* never made any such advance. Whence this power? It may be said that man possesses it *as man*, but this simply carries the difficulty further back and brings us again to the old question of the origin of man.

The remaining chapters of Mr. Lesley's book are chiefly directed towards an explanation of what he terms "arkite symbolism." Mr. Lesley finds that every language of modern times bears the impress of "priest language," which has had its origin in the tradition of a deluge. The remembrance of this deluge was impressed so forcibly on the remnant of mankind as not only thus to affect its languages, but also to give its special form to the primitive alphabet, to originate the peculiarities of ancient architecture, and to form the key to the whole system of Egyptian worship. We have not space to enter into an examination of Mr. Lesley's system of arkism. We would only say that although it is highly ingenious, the etymologies on which it is chiefly founded are far from satisfactory, and if Mr. Lesley had thought of his own dictum, that we do not "get any ethnological light from philology worth speaking of," we think he would have been careful

not to place so much dependence as he has done on philological analogies."

Before closing this article, we would call attention to Mr. Lesley's chapter on the "Four Types of Religious Worship." Although we cannot agree with all Mr. Lesley's conclusions, we recommend the chapter to the careful perusal of those interested in the question discussed. Mr. Lesley finds four great types of religious life "embodied in the worship of the dead, the worship of the powers of nature, the worship of God in Heaven, and the worship of the universe." This division is ingenious, but we are inclined to think, nevertheless, that it does not express the exact truth. According to this view, most savage peoples worship their ancestors, a worship which, with the advance of civilisation, is exchanged for that of the powers of nature, or fetichism. Tried by the example of the Chinese, who to the present day are ancestor-worshippers, this cannot be correct. If we turn to Africa, the very home of fetichism, and take the case of the Kaffirs, one of its finest peoples, we see the same phenomenon; while if we go still lower, to the natives of Australia, we see no actual worship at all, but merely certain mysterious rites for appeasing the supposed anger of spirits. The fact is, that Mr. Lesley does not see the true nature of fetichism. The fetich possesses power only because it is, not merely representative of, but actually the abode or under the influence of a spirit. Immediately the spirit goes the fetich loses its power, and it is thrown on one side. Fetichism is in reality a worship, or rather a propitiation, of spirits. Among the aborigines of Australia this dread of the spirits of departed men is carried to a most amusing extreme. The burial of the dead has undoubtedly had its origin in this dread of departed spirits. The propitiation, or worship of spirits, had, however, at first no relation to particular ancestors; this is an after-development, and is a natural result of the "differentiation" which marks all intellectual progress. In this way alone can be explained the extraordinary prevalence among the civilised nations of antiquity of the worship of ancestors. Nor do we think the discovery of the so-called "funerary grotto of Aurignac" any disproof of our assertion. The only ground for supposing that the fires lighted in front of the cave were funeral ones, are that no trace of fire has been discovered inside the cave, and no human bones or necklaces found outside; but this is really no proof whatever. Unless the survivors lived in the cave with the dead, they could have lighted their fires only on the outside, as it is quite evident, from the indications of tools and weapons being there manufactured, that these survivors passed their time on the spot. The idea of there having been a worship of the dead, is merely a fanciful deduction from facts

which are capable of a more simple explanation. African fetichism is, in reality, the same superstition as the Shamanism, or so-called devil worship of Asia. It is not because man fears the strange and mysterious objects of nature that he worships them ; it is because he suspects some hidden power behind, giving those objects their form and effect. This superstition is, however, not founded only on fear. Fear alone will never explain such a superstition as the reverence for trees, which is one of the most wide-spread. This can only be explained on the principle of utility, combined with a certain prominence of form or position, which renders the object a fit habitation for spiritual influence. The sacred groves of antiquity had a like origin, but the utility for man was there almost lost sight of in the fitness for the spirit. The silent grove of majestic trees exerted the same influence over the worshippers of the Pagan Gods as the cathedral does over the Christian. Mr. Lesley has, moreover, overlooked the fact that every the most abject of fetich worshippers has some idea, however indefinite, of a Supreme Being. Captain Burton states this to be true of most of the African peoples, and it is difficult on the principles Mr. Lesley lays down to account for the fact. It can be explained only by the supposition that there are certain phenomena of nature which appear to the mind too mighty to be caused by the spirits of ordinary men, and they are, therefore, referred to some great and mysterious being, who reveals himself to man only in those phenomena. Kings and great men came to be worshipped as Gods because they were so superior to the common mass of mankind, and in some cases they were identified with the most imposing natural phenomena.

In the Jehovah worship of the Jews we have a still higher development of the worship of ancestors. This is evident from the prevalence of the latter superstition among other Semitic peoples, and from the peculiar phraseology of the Jewish Scriptures. In combination with the worship of ancestors was an indefinite notion of a Supreme Being, such as that possessed by the Kaffirs, which afterwards became developed into that of the *God*, "of their fathers, Abraham, Isaac, and Jacob," the name for whom was adapted from a kindred people. According to this view, we see in the progress from the fear of departed spirits, shown by the savage, to that of Jehovah exhibited by the Jews, a rational evolution of religious worship,—pure fetichism and planetary worship being phases of degradation rather than of evolution. The highest type of religious belief is, as Mr. Lesley points out, Pantheism. Towards this is the tendency of all modern Aryan thought, whether in Europe or America, or among the natives of India. This Pantheism, however, takes its tone from Christianity even in the minds of the enlightened students of Benares, many of

whom are as well read in the controversial literature of Europe as, at least, their English brethren. It is, nevertheless, the morality of the New Testament chiefly which is thus influential, and not its theological dogmas. These partake too much of the superstitions of the old world religions to retain their influence, and Mr. Lesley has done good service in showing that there is a religious evolution which necessarily ends in Pantheism—Christian, while discarding the special dogmas of orthodox Christianity.

We must here leave Mr. Lesley's book. It contains several errors of fact and various misnomers, possibly due to his want of books of reference. Its philological comparisons and deductions, although often ingenious, will not, we think, stand the test of accurate criticism. Again, Mr. Lesley has expressed certain disputed conclusions with too confident an air; while with others, relating more expressly to his peculiar views on Arkite Symbolism, we shall be surprised if many competent readers agree. On the whole, however, we can recommend Mr. Lesley's book as a careful summary of the facts bearing on the theory of evolution, so far as concern the origin and progress of man. It might have been condensed, and its style in some places altered with considerable advantage, but the circumstances under which it was written and published will in a measure account for this not having been done. In the interests of anthropological science we wish it every success.

SPROAT'S STUDIES OF SAVAGE LIFE.*

In these days of sensational science, it is really refreshing to meet with a book sensibly and modestly written, and dealing, with the tact of a close observer, with facts, to the entire exclusion of grandiose theory. It would have been difficult for Mr. Sproat to have selected an arena for his studies less known, and hitherto more contemptuously regarded.

A short narrative of the circumstances which surrounded the author during the collection of his materials, will best explain why he was able to compress into a small volume so much that is valuable, from its bearing the stamp of truth. Mr. Sproat proceeded to Alberni, the

* *Scenes and Studies of Savage Life*, by Gilbert Malcolm Sproat. London : Smith, Elder and Co., 1868.

English name of the settlement on Nitinaht (or Barclay) Sound, in his capacity as one of the proprietors of that place, and held office as a colonial magistrate during the period of five years. Thus, he says himself, in his preface :—

" I lived among the people, and had a long acquaintanceship with them ; I did not merely pass through the country. The information which I give concerning their language, manners, customs, and ways of life, is not from memory, but from memoranda written with a pencil on the spot—in the hut, in the canoe, or in the deep forest ; and afterwards verified or amended by my own further researches, or from the observations of my friends."

Hence the air of freshness which is breathed throughout this pleasant volume, as will presently be seen. As a picture of savage life of our own day, and which cannot fail to interest on account of its probable analogy with savages of very remote ages, it is desirable to be very minute in the present attempt to summarise Mr. Sproat's observations. We may observe, in passing, that it is somewhat of a drawback that no map of the west coast of Vancouver's Island is given, as it would greatly add to the value of the book.

Mr. Sproat first entered Nitinaht, or Barclay's Sound, in August, 1860, and proceeded to form the nucleus of a settlement : although, properly speaking, the territory had already been acquired by a title derived from the Crown, it was found necessary to go through the formality of a further purchase from the Indians. After some negotiation, twenty pounds' worth of goods settled this preliminary ; but the next difficulty was to obtain a voluntary migration of the tribe in occupation. After waiting two or three days, Mr. Sproat appealed to them, and they removed to a short distance.

For a considerable time the settlers were engaged in setting up their new home ; and in this interval began to effect improved relations with their wild associates. At first, many attacks upon the settlement were anticipated ; but in time this all passed away and better opinions began to prevail. It may be mentioned that the Aht tribes look upon the sailors in ships as a separate tribe of King George-men, and they cannot understand why the fighting should all be left to a few individuals.

Before proceeding to an account of the tribes themselves, Mr. Sproat describes the features of the country, which seem to consist of land and water " pretty much mixed," as the Yankees say. Capacious inlets of the sea throw out arms into the interior of the country, and the broad surface of these sounds are studded with rocky islets—as in the Scar in the north-west of Europe—covered with scrubby, hemlock, cedar, and pine trees. These pine forests clothe the sides of the mountains, and

the whole district is singularly rugged and mountainous, resembling parts of the highlands of Scotland. "The back of the world, brother," an old Gaelic woman once said on coming to this district; "you are bringing me to the back of the world."

With regard to the natives of this wild country, it would seem difficult to estimate the population exactly, but between Pacheenah and Nespod there appear to be twenty distinct tribes of the Aht nation. In number these tribes vary greatly. Some consist only of five persons, as the Manosaht, on Klah-o-quah Sound; and the largest tribe, the Nitinaht, numbers 400; they average about 80 individuals per tribe, and are all more or less nearly connected. In an appendix, Mr. Sproat gives their native names and numerical strength, to which the reader can refer. The average ages of their men, taken in one tribe, the Opechisaht, in 1864, seemed to be about fifty-three; and the most influential chief was then fifty-five years of age. The tribes are not confederated, and they practise different arts: one is skilled in canoe-making, another in painting boards for ornamental work, and so on. Even in matters of cultivation, the tribes maintain a custom of growing one article, and bartering it with their neighbours. In physiognomy the Aht tribes differ; faces of the Chinese and Spanish types may be seen, and they vary also in intelligence. No political supremacy is specially assigned to any tribe. A mythological personage, Quawteah, is supposed to have originally given them their tribal names, as Toqu to the Toquahts, Ohy to the Ohyahs, Nitin to the Nitinahts, the *aht* in all cases being added in respect of the memory of their legislator. The language has not varied for centuries. A vocabulary of this is given by Mr. Sproat, and may prove interesting to philologists.

"The external features of all the natives along this coast are much alike; but one acquainted with them can generally distinguish the tribes to which individuals belong. I have noticed that the slaves have a meaner appearance than the free men, and that those few small tribes who dwell inland, along lakes and rivers, and who live on a mixed diet of fish and flesh, have a finer stature and bearing than the fish-eaters on the coasts. . . . Individuals may be found in all the tribes who reach a height of five feet eleven inches, and a weight of a hundred and eighty pounds, without much flesh on their bodies. The extreme average height of the men of the Aht nation, ascertained by comparison of a number, is about five feet six inches; and of the women, of about five feet and a quarter of an inch, a stature which equals that of the New Zealanders.* Many of the men have well-

* It may be mentioned, that the author severely criticises the absurd description of the Ahts as given by the Abbé Domenech, who, in this case, as in several other matters, evinces crass ignorance of anthropological science.

shaped forms and limbs ; none are corpulent, and very few are deformed from their birth. I have, however, seen very few who had been born crippled ; one, with withered crooked legs, stiff at the knees, was an excellent canoe-man. The men, as a rule, are better looking than the women. The latter are not enticing, even when young, though one meets with some good-looking women ; but these, in a few years after reaching womanhood, lose their comeliness. They are short-limbed, and have an awkward habit of turning their toes in too much when walking."

The men are described as strong, with great powers of endurance, going a long time without food ; their complexions are of a dull brown. They all swim well, and cannot be beaten as divers ; they bathe every day until after middle life. The men's dress is a blanket ; the women's a strip of cloth, or shift and blanket. The men have but little beard or whisker—hair is never shaven, is black or dark brown—slaves wear the hair short : to cut off an Indian's hair is a punishment, as he is thereby exposed to the derision of the tribe. The face is rather broad and flat—the mouth and lips large—the skull fairly shaped—the eyes small and long, and deep set, very dark hazel—the nose is remarkably well-shaped in some instances : a piece of cockle-shell, a brilliant ring, or a bit of brass, is often put through the cartilage, and similar ear ornaments are worn by both sexes. The teeth are regular but stumpy. There is no tatoo, but they paint the face. The women cease to paint at twenty-five, and then wear feathers in the hair. In war time the face is blackened by the warriors.

The heads of Aht children are but slightly deformed, only as much as the resting in the cradle may suggest. "The infant is laid soon after birth on a small wooden cradle, higher at the foot than the head. A padding is placed on the forehead, and is pressed down with cords, which pass through holes on each side of the trough or cradle ; these being tightened gradually, the required pressure is obtained, and after a time the front of the skull is flattened." This does not appear to injure the brain. The tribes age rapidly ; they do not gradually pass from the full vigour of manhood into old age.

The author enters into minute particulars as to their houses, their feasts, and their customs, which it would be impossible to give space for here. These resemble those of many neighbouring tribes, and present the main features of savage life. Sometimes the occurrences in the settlement of Alberni savoured somewhat of the ludicrous, as the following will show :—

By accident rather than design, one of the men at an outlying farm, the potatoe-fields of which the Indians were in the habit of plundering, shot an Indian with a pea, which penetrated into the left lung, and it became necessary to hold an inquest—at which the author, in his magisterial quality, presided.

The first difficulty was to find a doctor to make a *post mortem* examination : this was surmounted by the fact of one of the woodmen having once been a staff surgeon in the British army—his diploma being in his chest. A motley jury was then sworn, and the culprit brought in. The principal testimony consisted of the fact of the pea being found, and of the prisoner's own words to his companions, "Jack ! I've shot an Indian !" The jury was duly charged and dismissed to find a verdict ; it being evidently supposed by the author that some kind of verdict, as "accidental slaying," would be found. The jury were a long time gone, and the surprise of the magistrate must have been extreme when the verdict was, "we find the Siwash (name of his tribe) was worried by a dog !" The judge, who could scarcely maintain his gravity, sent them back to find a verdict in some slight degree probable ; and, after a longer time, the jury reappeared and said, "we say he was killed by falling over a cliff !" the country for a mile round the body was as flat as a table. It was of no use, the men hung to their companion ; and the neighbouring Indians were rather pleased than otherwise at the transaction, as the man belonged to a distant tribe.

In terse and vigorous language, the author describes the native manufactures, the condition of the slaves, the marriage customs, the tribal ranks and political system.

Especially valuable to the philologist is the chapter on the language of the Ahcts and the vocabulary at the end of the volume, which is extremely full.

The religion of the Ahcts formed a considerable subject of inquiry on the part of the author, and his remarks on the difficulty he found in arriving at any conclusions on this head, are most interesting, and indeed anthropologically valuable. He says (p. 205) :—

"I was two years among the Ahcts, with my mind constantly directed towards the subject of their religious beliefs, before I could discover that they possessed any ideas as to an overruling power, or a future state of existence. The traders on the coast, and other persons well acquainted with the people, told me that they had no such ideas, and this opinion was confirmed by conversation with many of the less intelligent savages ; but at last I succeeded in getting a satisfactory clue to such information as this chapter contains. Is it not possible that many otherwise observant travellers have too hastily assumed, after living a few months among savages, that they had no religion ? It is no easy attainment to know the language of savages conversationally ; and to get their confidence—particularly the confidence of the intelligent Indians—is a still more difficult task. A traveller must have lived for years among savages, really as one of themselves, before his opinion as to their mental and spiritual condition is of any value at all. The fondness of the Ahcts for mystification, and the

number of 'sells' which they practise on a painstaking inquirer going about with note-book in hand, are unexpected and extraordinary on the part of savages, whom we regard as so mean in intelligence. They will give a wrong meaning intentionally to a word, and afterwards, if you use it, will laugh at you, and enjoy the joke greatly among themselves."

It would seem that their religion, such as it is, consists in sun and moon worship, the former being feminine, and the latter masculine. Of a supreme and beneficent being they know nothing; but they seem to have some idea of a vague being of destiny. This being they call Quawteah, but hold that he was once a man as they are. He is now chief of a happy shadow-land, whither they also hope to go at some time or other, to live as the guests of Quawteah; but this, they believe, is only for chiefs and warriors. Quawteah and Odin are alike, the author says; they drive away the pauper and the bondsman from the doors of Valhalla; in this, by the way, resembling the beadle of a modern fashionable church. He is regarded as the framer, but not exactly the creator, of all things; some special things excepted. Some say he made the sun and moon; but others say they are superior to him, although they are more distant and less active. But the earth, and trees, and rocks, and all the animals owe their existence to his formative power. He also gave names to everything; even to the Indian houses, which were inhabited by birds and beasts, subsequently changed into Indians, a species of Darwinism of a vague kind. They also believe in an evil spirit; but Quawteah and the evil spirit, perhaps Tootooch, receive no worship as the sun and moon do. There are rude ideas of transmigration or transformation into animals, and, indeed, pre-existence in that form, as noted above. Chay-her is the name given to a country deep down beneath the earth, where all those go who do not go to Quawteah. In this country things are much as they are on the earth, but with inferior houses, no salmon, and very small deer. All these matters are under the care of their medicine men, who are as superstitious as the common run of their class. Their medical usages are very primitive; but they employ many simples, which Mr. Sproat recommends to the attention of physicians.

The form of burial is neither by incremation nor interment. The practice is to place the chiefs and young girls in rudely-constructed boxes, fastened upon trees about twelve feet from the ground; a white blanket is thrown over the box, and four or five torn blankets hung on neighbouring trees. Old women, and men and boys of no rank, are wrapped in worn blankets, and left on the ground. Secluded headlands are commonly used for Aht burial-places, and anthropological

explorers may perhaps avail themselves of the hint in order to obtain crania of this interesting people.

The great experience of the writer of this volume among savages will render the extracts we are about to make from his concluding chapters, in which he considers the effect upon savages of intercourse with civilised men, and upon the disappearance of autochthonous races, most interesting to anthropologists. Indeed a work so full of descriptive anthropology we never read.

Learned bishops sometimes rush in where anthropologists fear to tread, and an exemplification of this unhappy fact is given in the following extract from a speech made by Dr. Selwyn, Bishop of New Zealand, at Manchester, on the 7th of October, 1867, which is placed by Mr. Sproat at the head of the remarks from which we shall take some portion.

The right reverend gentlemen, probably emulating Parson Brownlow, Mr. Spurgeon, *et hoc genus omne*, thus delivers himself :—

"They had heard it said that it was a law of nature that the coloured races should melt away before the advance of civilisation. He would tell them where that law was registered, and who were its agents. It was registered in hell, and its agents were those whom Satan made twofold more the children of hell than himself."

Far be it from us to dispute the authority of the episcopal assertion. It is well-known that such registration does take place, as we have on our shelves verified copies of two similar documents, being contracts between His High Mightiness Prince Lucifer, of the one part, and Master Urban Grandier ("done in this year and on this day") of the other, and in the second instance ratified by the Council of Demons. Signed by Lucifer, Beelzebub, Satanas, Elimi, Leviathan, and Astaroth, and countersigned by the Secretary of the Council, Baalberith. But in anthropological matters we are disposed to think that the authority of the gentlemen of Dante's and Faust's favourite regions is at least open to criticism.

Mr. Sproat thinks, and justly, that if the bishop desires to influence the opinions of reasonable men on this difficult point, he must use other language than this. Indeed, it seems strange that the experience of the prelate among the Maori should have led him to such conclusions. The permanent occupation of any territory by civilised men must mean the extirpation, more or less remote, of anterior races occupying the soil, and antagonistic to civilisation. But whether it be possible to so modify occidental civilisation as to render a part of it acceptable to savage or oriental nations, is entirely another question. That is a purely anthropological question. Mr. Sproat very properly puts it thus, and as in the main we agree with that gentleman, we shall avail ourselves rather of his words than our own.

" By the expression 'savage native population,' I distinguish between the rudest untutored races and aborigines of finer native races more capable of civilisation ; with these latter, or with an improved remnant of them, it is not yet shown that English colonists, or their descendants, will not intermix. I hope it may be shown in New Zealand that such intermixture is possible, but, as far as experience has taught us, it is extremely improbable that any large population of English descent will mingle their blood and grow up side by side with any race that differs widely from them in character and in civilized culture. *In all dominant races, indeed, there is, to a large extent, an aversion to intermixture with other people—whether civilised or uncivilised.** For instance, the English colonists have not yet shewn any tendency to amalgamate with the descendants of the French in Canada, who live close to them in the same country, and are almost on the same level of civilisation, and whose women are most attractive."

After insisting upon the necessity of correct ideas as to the effect of colonisation upon native races, he proceeds to say that although the idea of extinction may be regarded by some with repugnance, as leading to a harsh treatment of the natives, he has himself no apprehension in the matter, and rather looks upon this possible extinction as a stimulant towards acts of justice and forbearance on the part of civilised settlers, if a clear view could be obtained of the importance of the crisis. He then proceeds :—

" Several agencies—moral as well as physical—are concerned in the disappearance of aborigines before intruding civilised settlers, and these agencies must be properly estimated by the inquirer who seeks to form a right opinion on the subject. The problem he has to solve is a difficult one, which requires facts, and not theories, for its solution, and unfortunately we possess few accurately observed facts that bear on the question. These, indeed, will always be hard to obtain, owing to the want of opportunities by travellers and the difficulty of observing precisely the particulars of change which accompany the continual intermixture of two different races—the one civilised and the other not."

He then states the first question to be whether there be not in these races elements inherent to their nature leading to decay, and which are powerfully stimulated and intensified when the race habitually consorts with individuals of a superior race. He cites the experience of the Jesuits in California, and of others in proof of this, and we are disposed to consider it as extremely likely that the juxtaposition of the unquestionably artificial civilisation of Europe and the uncivilised native life of savagery, may have a tendency to appal and obscure the savage mind—in fact, that the mere presentation of a foreign and novel state of existence may frighten the "noble savage," first out of his wits, and then out of existence altogether.

* The *italics* are the reviewer's, not the author's.—ED. ANTH. REV.

At any rate, it is an indisputable fact that the native inhabitants of British Columbia, from the report of intelligent fur traders, have appreciably decreased. Ardent spirits at the time had not been introduced, and the inevitable deterioration produced by intermixture of alien races, with its premonitory symptoms of decay by a train of diseases, had, on Captain Cook's visit, already set in, and at the present time a population of four thousand individuals has dwindled down, without epidemics or outside influence, to six hundred. This may partly be attributed to breeding in and in, but it is emphatically not the result of civilisation. Mr. Sproat says:—

"The natives have remained in almost a primitive state, only visited occasionally by a ship of war or a trading schooner; they have had plenty of food and better clothes than they possessed prior to their knowledge of blankets, and their number has not been lessened by any epidemic, nor by the division or emigration of any of the tribes."

It may be urged that the occasional visit of a ship of war—in fact, an incursion of Jack Tar, may have a deteriorating influence. In some cases it must have been so, but discovery-ships are usually under the charge of officers of the navy capable of restraining their men from undue excesses. Perhaps it would be wise for the Government to issue specific and peremptory instructions as to men's leave in savage countries. In the case of the Nootka, or Moouchaht, population, it is proper to state that the Nootka women do not visit any white settlements for the purpose of prostitution. Anthropologists do not pretend to the protection of aborigines, but they at the same time have no interested motives in their extinction; to them the negro and the red man afford interest and instruction alike; but, unlike a very unfortunate, not to say malignant, set of men at the present day, they do not desire to exalt the inferior at the expense of superior races. If the tendency is that they die out, that tendency, thus a natural one, cannot be finally arrested, although mitigation may be possible. Bishop Selwyn's sweeping assumption concerning the "chancery" of the "other place," may whistle down the wind. Let us, however, rather return to the consideration of facts.

Referring to the tribes among whom the author lived for over five years, those upon Nitinaht or Barclay Sound, he is clearly of opinion that they would have declined just as speedily without the introduction of cultured men. During the whole of the period just named, these savages received the greatest kindness, and improvements of every description were made in their dwellings, food, and raiment, the use of ardent spirits being also strictly prohibited—in fact, every care and forethought was taken to leave these men in the enjoyment of their native customs, with such advantages of civilisation as they might voluntarily adopt. Yet what did the effect of the presence of this orderly settlement prove to be on the savage native as a whole?

At first no symptoms either favourable or unfavourable were exhibited ; the influence probably working but slowly in any direction. They appeared to like to give occasional labour in the settlement, purchasing new planks and blankets with the money they earned. Change of dress did not ensue, the blanket maintaining its supremacy over the European costume, although, for a short time, some few, in a spirit of masquerade, swaggered about in the cast-off clothes of the whites. During the first winter they lived upon what they purchased from the whites—rice, flour, potatoes, etc ; but this innocent state was doomed to change, and the instability of savage character, wherever existing, soon established itself.

Some of the young sharp-witted Indians became suddenly what Mr. Sproat happily calls “offensively European ;” but the great mass of natives retired to their villages and remained in seclusion, heavily brooding over the fancied—to them, indeed, real—wrongs committed by the intrusion of the whites. Yet there was no ill feeling ; the curiosity of the savage had been satisfied, and his mind had become confused and stunned, as it were, by the machinery, steam vessels, and energetic labour of civilised man ; he was despondent and discouraged. This, as Mr. Sproat urges, has its analogy amongst white men.

“The same feeling, in a comparatively small degree,—a beaten, cowed feeling, with a sense of some loss of self respect,—must have been experienced by most men, at some change of their work or condition in life, which has brought them suddenly among men vastly their superiors in general, and also in special intellectual ability and force of character” (p. 278).

We may here remark, in passing, that probably the main advantage of civilisation does not consist in the prolongation, by superior conditions, of human life, or in the enjoyment of greater material comfort ; but in the gradual removal, by healthy emulation, of this very oppressive feeling of inferiority. The civilised man tries again ; the savage resigns the task in despair.

To return to the immediate subject. The natives soon grew more than usually suspicious ;—what did the white men mean ? They did not want the white men. Why, then, did the white men come ? Thus they argued. In the commencement of the settlement they said they did not want to sell their land or their water. A subtle influence was sapping the confidence of the Indian mind in his old pursuits and superstitions. Sickness ensued among those living near the settlement. Sproat especially says that spirits, syphilis, and similar destructive agencies, were not and could not be at work. Fear proved, as suspected, the main cause of illness ; and diseases produced by terror, such as diarrhoea, dysentery, and the like, prevailed, pushing up the death-rate to a great degree.

"Nobody molested them ; they had ample sustenance and shelter for the support of life, yet the people decayed. The steady brightness of civilised life seemed to dim and extinguish the flickering light of savagery, as the rays of the sun put out a common fire."

Three modes of action upon savage tribes have generally been suggested by the untravelled *οἱ πολλοί*, and it is somewhat interesting to observe how, in the main, the imaginative faculties of this class of man are at variance with observed facts. First, every colonist is elevated into a monster of injustice and cruelty ; second, he is presumed to carry with him "all the ills that flesh is heir to," and to spend the majority of his time in the practical dissemination of diseases ; and finally, the "home-keeping" purists, with "homely" wits, enlarge, with the unctuousness of a Chadband, upon the hopelessly vicious tendencies contracted by every one who leaves his native land to seek fortune and comfort on such barren and inhospitable shores, to be fertilised by his energy and industry.

Mr. Sproat considers that it may be "affirmed as an historical fact that very little violence has been used by English settlers generally in superseding weaker races." While many cases of cruelty can no doubt be proved, yet, in the main, the history of the intercourse of our countrymen with savages is creditable. Allowances have to be made for the settler. His position is widely different from the salaried mercantile emigrant or clergyman. What is a settler to do under circumstances of very small capital, and probably a total absence of many of the absolute necessities for mere animal existence ?

"Not content—like the lazy savage—to be a fisherman or hunter, he takes a firm hold of some object for his labour that presents itself to his grasp, and is prepared immediately to defend his acquisition, and to protect his family, if assailed."

As a squatter on some unoccupied land, he feels himself somewhat differently situated from a mere labourer ; he has not only to fight for existence, he is raising land value, and the original wrong of intrusion gradually becomes a right by such improvement. It is only in extreme cases that he interferes with the savage, and that individual necessarily migrates, and perishes without absolute open cruelty on the settler's part. Next comes the question of diseases, said to have so great an effect in destroying the savage. Diet of a new kind, rum, and the—to a savage—unintelligible religion of the European, must act both on mind and body, and thus render him receptive of alien and fresh forms of disease ; but Mr. Sproat has serious doubts as to what ideas are intended to be conveyed when it is said that diseases are carried by civilised man among the savages.

"What," he asks, "are these diseases thus carried from England

by emigrants—diseases contagious in their nature, yet harmless in a crowded ship—destructive on shore to the aborigines only? Phthisis, small-pox, syphilis,—what? I believe the last-named disease alone is meant; but as this disease prevails among savages generally in their primitive condition, though in a milder form than among civilised men, the introduction of it, even if it occasionally happens, cannot be charged against the colonists as a race. Syphilis, and several other diseases, assume a peculiarly virulent character when the two races commingle. More than this cannot, I think, in relation to this subject be said of it."

Turning to the subject of "vices," it is most unquestionable that people mean by this the English vice of drunkenness, and the example it affords to the savage. Now, in this case the savage is playing with edged tools; whether the settler be sober or drunk, the savage, in his inexperience, never practises temperance. It is not in his childish nature to estimate the effect of what he takes: and whose office is it to point this out to him? Not that of the settler, who has no time; nor of the missionaries, whose efforts, as a class, are directed towards the accumulation of wealth, and the establishment of a religious supremacy. The magistrate, the lover of order, and the scientific explorer, alone have any interest in doing so. But how few are these? Let governments encourage science, and these evils may be arrested. There is no middle course in this. Anthropologists alone can suggest the proper practical means.

In the following conclusion all will agree:—

"The Indian loses the motives for exertion that he had, and gets no new ones in their place. The harpoon, bow, canoe, chisel, and whatever other simple instruments he may possess, are laid aside, and he no longer seeks praise among his own people for their skilful use. Without inclination or inducement to work, or to seek personal distinction,—having given up, and being now averse to his old life,—bewildered and dulled by the new life around him, for which he is unfitted, the unfortunate savage becomes more than ever a creature of instinct, and approaches the condition of an animal. He frequently lays aside his blanket and wears coat and trousers; acquires perhaps a word or two of English; assumes a quickness of speech and gesture, which, in him, is unbecoming, and imitates generally the habits and acts of the colonists. The attempt to improve the Indian is most beset with difficulty at this stage of his change from barbarism; for it is a change, not to civilisation, but to that abased civilisation which is, in reality, worse than barbarism itself. He is a vain, idle, offensive creature, from whom one turns away with a preference for the thorough savage in his isolated condition."

At this stage of the Indian's progress the effects of drink are most exhibited. The symptoms produced are inconceivable to those who have only seen civilised drunkards. To the savage it is a consuming

indulgence, "producing madness, rage, and frantic excitement, followed quickly by disease, languor, despair, and death." The habitual contact of the savage with a superior people also renders him peculiarly sensitive to disease, especially to sexual disorders.

The author takes but a desponding view of what may be done towards saving the savage races. Isolated bodies of savages may be benefited, but the majority, never. Into this Mr. Sproat briefly enters ; but in this already too extended notice, we have no space now to enter. It is sufficient to add, that emphatic testimony is borne to the utter failure of ordinary missionary enterprise ; the grandiloquent reports sent home are utterly untrustworthy, calculated to give totally wrong impressions, and to perpetuate a system of heartless fraud.

K. R. H. M.

THEOLOGICAL PHILOLOGY.*

THIS Book is an illustration of the remark "what great effects from trifling causes spring." Newton deduced large physical laws from the fall of an apple, and our author has arrived at many deductions of great importance, having started from the simple question "how did John and Jack become synonymous?" The progress from the starting point was made through the relations between other names of ancient origin and modern ideas. On finding that such cognomina as Elizabeth, Anna, Isabella, and others, date from a remote antiquity, Dr. Inman has investigated such ancient names as occur in the Bible and elsewhere, with an especial eye to the ideas which dictated their adoption.

Our author shows that appellatives amongst the Shemitic nations were not hereditary ; there is, for example, no "David the second," nor "Solomon the third," spoken of in the Scriptures. He tells us, too, that cognomina were given at birth, or shortly afterwards, whence he deduces the corollary that if a name is assigned to an historic personage which describes his character, the reader must believe that the cognomen was invented by the historian who tells of the man, rather than given by authority when the individual was young. Thus,

* *Ancient Faiths embodied in Ancient Names; or, an Attempt to trace the Religious Belief, Sacred Rites, and Holy Emblems of certain Nations, by an interpretation of the names given to children by priestly authority, or assumed by prophets, kings, and hierarchs.* By Thomas Inman, M.D., printed and published for the author ; to be had through Trübner, Paternoster Row, and all booksellers. 8vo., pp. 789 (largely illustrated).

DAVID is said to signify "beloved" (by God), but that he would be so could not be predicted of him at his birth, and consequently it is more probable that his original appellative was DUDAI, which signifies "love apples," this being by simple transposition changed into DAUID. The author then states, on the authority of Rawlinson and other scholars, that names were in ancient times given by priests or oracles, and that these introduced into the cognomen the titles or attributes of the god or goddess who was the object of their worship. One remarkable illustration of this is an appellative found in a Babylonian inscription which signifies "Nebo gave the name." From this very important circumstance it follows that an investigation into the signification of names is one of the means by which a knowledge can be attained of the names of ancient gods, and the ideas associated with them and with their worship.

Having thus laid the foundation for future remarks, the author goes on to show the strong probabilities which exist that the religious notions of the Shemites were largely diffused along the shores of the Mediterranean, the maritime borders of Europe, and the British Isles, by means of traders from Tyre and Carthage, whose naval enterprise and religious belief he compares with those of the Dutch, English, Americans, and Spaniards. The author then expresses his belief that the colonisation of Europe has been brought about by two distinct elements, the one being the Indo-Germanic race, who travelled wholly by land, the other the Phœnicians, who voyaged in ships. Whenever these two came into contact, he considers that a language was formed resembling the *lingua franca* now in use along the shores of the Mediterranean. In this it is certain that the tongue of the seafaring travellers would preponderate, whilst inland there would be few words found which had been imported by sea. Hence the author accounts for the frequent appearance of Shemitic names on the European seaboard, and of the remains of Phœnician customs in her maritime provinces.

Having then shown that there is strong probability for the belief that many current cognomina and names of localities are of very ancient origin, and that they were originally associated with the religious belief of the Shemitic races, the author then institutes an inquiry into the theology of the Assyrians and Babylonians. In doing this he assumes that the inquirer is at perfect liberty to illustrate the past by the present, for no one, he thinks can assert any antiquated form of religion to be too absurd to be possible, if it is shown that a faith of a corresponding character is held by one or more nations now existent. Before examining the religion of other people, the author takes a rapid review of that which obtains credence in Great Britain, and in few

words shows the nature of the glass house in which we ourselves live, thus showing the advisability of our not throwing stones at our neighbours too actively. Our author shows very strongly that the Roman Catholic form of christianity contains a large amount of paganism, and he frequently adopts papal doctrines, dogmas, and symbols as evidence of Babylonian religious tenets.

When describing the ancient gods of Assyria, the author refers to the reverence with which the lingam and the yoni are held in Hindostan and Asia generally, and in this part of the volume he enters into particulars which are not to be found in any other published English book—although such information is readily to be met with in France and Germany. The difficulties which beset the author when he entered upon this portion of his task are evident to the reader, for he finds that in some instances the English language is exchanged for the Latin. It is, under all circumstances, a very trying task to dress up what are considered indecencies in honest garb, and the labour is not the less difficult because the obscenities have been inseparably interwoven with what passes to this day as religion. It is this which has doubtless deterred our contemporaries from reviewing this very important book; yet we think that the interests of morality require that the subject referred to should be widely known. If, as the author propounds, the doctrine of the christian trinity be founded upon the fact that the organ which characterizes the male is composed of three distinct portions, which are, so to speak, "co-eternal together and co-equal"—three parts, but one thing—it is clear that few who know this would care to take part in the strife between Athanasians and Arians. To many it may seem to be an outrageous idea that such a trinity could ever be regarded with honour; yet that it was so is clear from the 23rd chapter of Deuteronomy, and the first verse, wherein we are distinctly told that any one in whom a portion of this triad was injured was to be excluded from "the communion of saints." Again, if, as the author asserts, the reverence in which the virgin is held by many at the present day, is nothing more than a relic of the worship of the yoni, or a counterpart of the impure cult of the Egyptian Isis, the Greek Ceres and Venus, and the Assyrian Ashtorath. If "Mary" is nothing more than a covert means of referring to the particular part which characterises woman, we cannot conceive that any one would fight for the supremacy of a priesthood professing to honour such a part; we conclude, therefore, that it is a duty, however disagreeable a one it may be, for all who profess to be religious teachers, to examine into the real foundation of the faiths current at the present day. Dr. Inman endeavours to lead his readers logically to the conclusions which we have indicated above. Quoting mainly

from Rawlinson he shows that the godhead amongst the Mesopotamians was a "quartette," which he considers to be equivalent to the Hebrew ARBA—a word signifying four—and literally allied to *erva*, the meaning being "the *prudenda*" of both sexes. Of these four three are males and one is female. These are described as the creators of all things, an idea which is manifestly taken from a belief that the Almighty acts in Heaven as He has taught His creatures to do on earth. As no new being is formed in our world without a conjunction between the male triad and the female unit, a similar union is presumed to occur on high, and the author shows that amongst ancient, and some modern nations, the Almighty is described as androgynous. That this idea prevailed even amongst the Jews, as well as other Shemites, is shown by their use of such words as Elohim, Baalim, Ashtorath, which indicates a plurality or duality of individuals who speak and act as one. With the idea thus indicated the sun and moon were associated, the former to represent the male, the latter the female creator, and "the four" is still indicated in papal and other churches by the sun and moon in conjunction. The earth frequently replaces the moon in mythology.

Dr. Inman then calls the reader's attention to the antiquity and signification of certain signs or symbols which are used as freely in christian churches as they are in pagan temples. He pays, moreover, special attention to the curious figure which is spoken of by Cuneatic scholars as the grove, and he demonstrates, we think, that it is a covert way of indicating the female sex, and analogous to the sistrum of Isis, *vesica piscis*, or the lozenge of the Virgin Mary. He concludes hence that the Mesopotamian religion acknowledged the superiority of the Mother of God, and he again calls attention to the close resemblance between the Babylonian and the papal religions; into which Dr. Inman does not enter fully, as he wishes his readers to consult Hislop's able work entitled *Nimrod v. the Papacy*.

In pursuing the subject of symbols, the author gives an illustration which proves that the "fleur-de-lys," once a venerated emblem in France, represents the male triad. To this he adds many others to show that the *crux ansata*, or handled cross, was an emblem of the union of the two sexes, just as the letter T was an emblem of the Almighty Father. The coronation orb placed in the hands of our own sovereigns, equally indicates the conjunction of the Trinity and the Virgin. After a long preface, extending over nearly 300 pages, and whose main features we have thus described, Dr. Inman has a short note, in which he indicates that the scope and intention of his work has been modified more than once by other investigators having taken up the subject, and published their conclusions, before he had advanced

far towards the completion of his manuscript. Amongst the authors indicated, he mentions the Rev. J. S. Lysons, whose book on "our British Ancestors" he eulogises. After this comes what he calls a vocabulary, in which he gives an explanation of the signification of all Biblical proper names, which commences from A to J inclusive; the rest of the alphabet being reserved for the second volume. In this part of the work are introduced many dissertations on subjects which are of considerable theological importance. For example, there is an article upon ANGELS, in which the author attempts to show that the very notion of the existence of such beings is founded upon a degrading idea of the nature of the Almighty. He shows that the Creator of the Universe, who is omnipresent, cannot require any beings to go to a distance on His business; that to suppose that He requires messengers is to place Him in the same category as an earthly monarch who sends ambassadors to other kingdoms than his own. This anthropomorphic notion is then traced from the Jews to the Babylonians, and a pertinent query is put whether the latter people can be regarded as heathens, pagans, or idolators, when it is found that articles of Jewish belief, which are to be found in our Bible, and so regarded as inspired truths, are drawn in reality from the priests of the kingdom of Nebuchadnezzar. Attention is also drawn to the corollary which follows from the foregoing, viz., if the Jews drew their inspired beliefs from Babylonians, it is clear that the latter were the people of God, and the depositaries of His revelations before the Jews were. Dr. Inman concludes this article by instituting a comparison between the Jewish and Christian belief in archangels and angels, and the Graeco-Roman faith in gods and demigods. In comparisons such as these he frequently indulges; and they almost always compel the thoughtful reader to lay down the volume, and submit his mind to a rigid cross-examination. The *tu quoque* style of argument so captivating to polemics, is here rigorously applied to those who think well of themselves but despise others. In this he resembles a writer who remarks, "thou who sayest a man should not steal—dost thou steal, etc.?" The book, indeed, is a continuous protest against the self-laudation of British religionists, and the senseless idea that the Almighty did favour the Jews, and now regards the Christians as his only legitimate offspring, to the exclusion of all the world besides. In what way, asks our author in one part, can we fairly discriminate between Elohim and Jupiter, Juno and the Virgin Mary. The first is represented as loving Israel as a man loves his wife; as being jealous, furious, avengeful, planning a design, changing His mind, and then cheating Himself: *e.g.*, He makes man, then determines to destroy everything living by a flood, and then contrives an ark by which his intention may be frustrated.

The Greeks never represented Zeus as doing such an absurdity as this. Again, we see Elohim, as three men, coming to visit Abraham; their special mission being to inquire personally into the character of Sodom and its neighbouring towns. These men eat and drink, and promise a son to an old man who entertains them. In like manner, Jupiter, as three men, go to visit another old and childless being, and give him hopes of offspring, even though he has no wife. The ancients gave no title to Juno which is not now given to the Virgin Mary.

Another point in Dr. Inman's work which strikes our attention, is the impartial style with which he analyses the characters whom he draws. In all the theological works which we have read, we have always noticed that the method of criticism applied to Scripture worthies differs wholly from that applied to other people. Thus, Abraham being once called "the friend of God," and "the father of the faithful," is treated with a tenderness, and his failings are covered with a gauze, which is never used with Budh, Julius Caesar, Alexander, or our own Queen Mary. David also being once styled the "sweet psalmist of Israel," is weighed in a very different balance from Ahab and Jezebel. In no instance does our author allow himself more than one standard, that of morality, justice, or right. Led by this, the accounts which he gives of Abraham, Isaac, Jacob, David, Isaiah, Jeremiah, Hosea, Daniel, and others, are as unsparing as if he were giving a biography of Alcibiades, Norman William, Mary Tudor, Napoleon, Fra Diavolo of Naples, and Jack Sheppard of England.

In his description, for example, of Jeremiah and the doctrines enunciated in the writings which pass by his name, Dr. Inman points out the utter absurdity which pervades them,—his remarks may be summed up thus: Jeremiah preaches to the Jews that all their miseries come from God in punishment for their sins: that if the people repent, victory, power, and plenty shall return to them. In other words, that prosperity is a mark of God's favour and adversity of His displeasure. If this doctrine be true it must follow that the enemies of Jerusalem were the friends of Jehovah, and that one on whom his displeasure rested, and who was consequently a bad man, was "the man Christ Jesus." From the same assertion we infer that the early Mahometans were dearer to God than were the Christians.

Amongst the essays which have arrested our attention very forcibly, are two upon HEAVEN and HELL. In the first of these the author remarks that the idea of future rewards and punishments did not obtain amongst the Jews, who borrowed it from the Persians and others; consequently it follows that our notions being founded upon sources wholly pagan, must either be valueless, or, if valuable, they must prove that heathens (so-called) are not pagans. Considerable

stress is then laid upon the description given of HEAVEN by divines, each filling it with the delights which the inventor most coveted—thus Mahomet makes the abode of bliss a spot where sensual pleasure is unbounded and eternal. The music-loving and covetous Jew peoples it with harpers and singers, golden palaces and jewelled dresses ; whilst the Christian makes one of the delights of his heaven the power of watching throughout eternity the tortures of those who opposed him during “time.”

We have also been very greatly struck by the forcible manner in which Dr. Inman occasionally enunciates a broad truth ; for example, he makes the remark that the Bible positively paints God and the Devil as the same individual, and he illustrates his meaning by referring to the pillar which intervened between the Egyptians and the Jews, and which was darkness to the one and light to the other. Just so the God who enabled David, Joshua, and others to ravage, ravish, and torture their enemies, was to those enemies a demon of destruction. What indeed is even the christian idea of the Almighty but of one who is loving to His friends, but who “plays the very devil” with His adversaries.

In the article on Hell, Dr. Inman has a passage which we here reproduce :—

“These thoughts lead us onwards to the consideration of the future condition of animals in general. It is quite as reasonable to conclude that horses and rats have a future existence as that worms have. We are told that in hell there is a worm that never dies ; we find too that the prophet Zechariah is a witness to an angelic vision, wherein a man is seen riding upon a red horse, which was followed by other horses that were red, speckled, or bay, and white ; and Zechariah is told by the Angel these were sent by the Lord to walk to and fro throughout the earth (chap. i, 8-11). We find additional evidence that horses exist in heaven from the Apocalypse of St John, wherein the angel declares that “he saw and behold a white horse, and he that sat on him had a bow” (chap. vi., 2). In other places he speaks of a red, a black, and a pale horse (chap. vi., 4-8). Now it is perfectly clear that if John really saw what he says that he did see, horses must exist in heaven, and if so it is quite as reasonable to conclude that they came from earth as that they were created in the sky. It is equally certain that in the mediaeval representations of hell there were numberless animals introduced whose business was to torture disembodied spirits, which the skill of Romish artists represented as material. There is not a single argument in Butler’s *Analogy of Religion* which does not apply as forcibly to all the lower animals as it does to mankind. The Indian peoples his future paradise with horses and dogs—the Christian adorns his heaven with golden harps and rivers of pure crystal, and the one idea is just as reasonable as the other.

“Now let us for a moment allow that there is a future for lions and

lambs, tigers and oxen, wolves and sheep, horses and dogs, we then have to examine the question, Do the vicious horses and dogs go to hell, and those who take to training kindly go to heaven? Do the spaniels and the domesticated dogs go to the good place, and the curs and savage mongrels to the bad? Or can one dog who has been vexed with another send him to the bad, whilst he himself takes to the good quarter? Can the murdered ox or sheep send the fierce lion or tiger to hell and go itself to heaven? To put these questions is to answer them; can we assign any greater power to man that is a worm?" pp. 577.

There is a still stronger blow dealt to the current Roman and Anglican doctrines respecting hell, in a note on pages 562-3, in which Dr. Inman denounces that *odium theologicum*, the indulgence of which forms an element in the christian's idea of heaven—the idea that hell is made to enable divines to indulge in an eternal revenge is indeed awful.

This quotation will give to the reader an idea of the author's way of handling his subject. He does not so much dogmatise as suggest ; he does not assert nor does he flatly deny, but he puts a question in such a manner as to do all this. He nowhere asserts the unreality of heaven or hell, but he insinuates that no man, nor any body of men, has any power to send a fellow-being either to the one place or to the other—he denies that man has any influence whatever in the unseen world. To remove such assumed power from human creatures Dr. Inman appears to consider as a part of his mission in life ; he clearly has no sympathy with those hierarchs who are perpetually saying in language of greater or lesser delicacy, "you go to hell" to each who differ from them. In an article on "Inspiration" the author thus speaks of such men and of the book on whose authority they indulge their cruel dispositions :—

"But it must still further be noticed that one of the necessary accompaniments of insufficient education in the leaders of religious thought, is the constant tendency in the interpretation of the "Word," which is said to be inspired, to lean to the animal propensities of men rather than to appeal to their better aspirations. Some preachers desire to be real Boanerges, or sons of Thunder, and rouse the passions of their hearers by flaunting before them the zeal of Moses, who ordered the murder of some thousands of his followers when being of heresy they thought more of a figure than of the unseen God Others of a more revengeful disposition quote authoritatively such passages as "Happy shall he be that rewardeth thee as thou hast served us." (Ps. cxxxvii., 8, 9),—and after two pages of illustration of this style of pulpit orators Dr. Inman remarks—"Surely when we find that the Bible lends itself so readily to the justification of murder in a religious cause, and adultery as a sacred emblem, and when we find that it contains a selection of such abusive terms as deserve the modern name

of 'Billingsgate,' it is justifiable for us to consider it to be the word of man rather than the inspired outpourings of the Almighty."

This is a matter of opinion. It is beyond our province or that of Dr. Inman to make such a generalisation. We think we have now said sufficient to give our readers some idea of the scope and object of this most important and interesting work. We know of no modern work which is more interesting to the student of historical anthropology than the one now before us. Dr. Inman is one of the men of the time, or perhaps more correctly, one of the men of the future. His work we commend to the attention of the students of theological and philological mythology.

Having examined the names explained in the vocabulary, we find that they may be thus classified. Those which refer to God as the almighty, inscrutable, omniscient, and omnipotent; those which refer to the sun as His minister; those which refer to the moon; to the heavens; to the planets; those which refer to the lingam chiefly; those which refer to the yoni; those which evidence an adoration of El; of Jah; of Shaddai; of Adonai; of Baal; of Bel, Asher, Gad (the Phœnician Venus), Astarte, and a variety of other names given to the Supreme. We must also notice an important note in which Dr. Inman, (on the authority of the Rev. Dr. Ginsburg, whose dictum on this subject carries overwhelming weight,) states that the Jews, in comparatively modern times, have intentionally altered the text of their Scriptures with the definite intention to make what is called the sacred record and the inspired word of God square with Hebrew ideas. In this the ancient "people of God" resemble the moderns, who assume the power of suppressing or altering the sense of any passage which they dislike. The God who changes not is thus declared to have two minds—the one announced in the Old, the other in the New Testament. The first is in reality regarded as the result of "His prentice hand," the second of His maturer judgment.

BARNARD DAVIS ON CRANIOSCOPY.*

THE long expected volume which contains a catalogue of the author's magnificent collection of skulls is now published; and it behoves the student of anthropological science to give some notice to the large

* *Thesaurus Craniorum.* Catalogue of the Skulls of the various Races of Men in the Collection of J. Barnard Davis, M.D., F.S.A., Membre Assoc. Etrang. Anthrope. Socys. Paris, Moscow, and Spain; V.-P.A.S.L., etc., etc. London: printed for the subscribers, 1867. 8vo, pp. xvii, 374.

series of interesting facts which Dr. Davis has now published to the world.

Shelton, in Staffordshire, is heard of to the English traveller as a *terra incognita*. There are few amongst the voyagers who watch that foretaste of Pandemonium, called the Potteries, as they rapidly cross the fields which present successive fiery volcanoes of blast furnaces, that know, or would care to know, that the largest collection of skulls in the world is in their immediate vicinity. Since the year 1848, Dr. Barnard Davis has, at his own expense (aided, in one case, by a grant from the British Association for the Advancement of Science), formed a collection of more than 1,540 human skulls, preserving, in each case possible, records of the race, sex, probable age, condition (as *e.g.*, whether a "calvarium," a "calvaria," or a "cranium,") even of the principal measurements, and a short description. These are embodied in the work before us. The collection is founded, in part, on a number of skulls which belonged to a notorious phrenologist, named Deville, of the Strand, and comprises donations and purchases from the majority of private travellers and collectors. We regret that so superb a collection should be buried at Shelton. So long as it is preserved in so out-of-the-way a locality, so long will many English cranioscopists be debarred from inspecting it in detail. It is necessary to centralise our national collections of crania. The Royal College of Surgeons' collection is now practically useless for any purposes of scientific comparison, inasmuch as the order in which Prof. Owen left the museum in 1856, is now neglected; and there appears to be no convenient interleaved catalogue now extant, accessible to students in the public room, containing descriptions of the numerous additional crania collected since his time. Whether such a catalogue is ever to appear, even as an appendix to the long-expected *Crania Typica* of Prof. Busk, we know not; and in the meanwhile we wait. The British Museum collection is nearly as inconvenient to study as that of Lincoln's Inn Fields; and has the extra disadvantage of being composed of skulls filthy with dust, and in a dark cellar. To our certain knowledge, many months at a time pass over without this collection being consulted, although many of its specimens, *e.g.*, the Sacrificios skulls, the Australians, and the Etruscans, are of the greatest interest. The museum of the Anthropological Society of London contains, we believe, more than 190 skulls, one or two of which are almost unique in interest. The "Australian," presented by Dr. Canton, is, according to the opinion of one of the greatest anatomists of France, one of the lowest human skulls ever depicted. The negro skulls presented by Messrs. Dendy and Harris, are most typical of the West African negro. Such gems as the "Louth" skull are of the highest importance in

defining the limits of what has been called Neanderthaloid variation in the Celtic race ; whilst the "Hova" and the "Armenian" present examples which cannot easily be matched in any scientific collection. We regret that no descriptive catalogue of this collection has yet been published ; and that the Council have not yet been able to carry out their intention of having a proper exhibition case for these skulls, the expense of which would comparatively not be very great. It might be even advisable that the special subscription which some years ago was opened for museum and library purchases, should be revived ; and thus individual liberality on the part of the members would supply the great need which now exists for the proper and cleanly exhibition of this magnificent collection.

We take the following figures from Dr. Barnard Davis, as showing the relative number of crania in the principal European collections at the dates affixed to them. Of course, the estimate is purely approximative. The Galerie Anthropologique in the Jardin des Plantes, and the Museum of the Anthropological Society of Paris, are, we see, not included, as no catalogues are yet published. Still, some definite ideas are conveyed by the following figures :—

Name.	Describer.	Number.	Date.
Shelton.	J. Barnard Davis.	1540	1867
" Mortonian."	J. Aitken Meigs.	1045	1857
Netley.	G. Williamson.	601	1857
Moscow.	Professor Bogdanoff.	400	1867
St. Petersburg.	Von Baer.	355	1858
" Blumenbachian."	Wagner.	310	1856
Royal College of Surgeons.	Professor Owen.	266	1853
Leiden.	Van der Hoeven.	171	1860
British Museum.	Gray and Gerrard.	139	1862
Senkenbergian.	Lucae.	96	1860

To these should be added—

Anthrop. Society of London.	Undescribed.	191	1868
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From this it appears that Dr. Barnard Davis's collection is much the largest in the world ; and that this catalogue is therefore, with its elaborate measurements, its precise facts, and its stern logic of vast comparison, a work which, next to the *Recherches sur la Craniométrie*, of Dr. Pruner Bey, must, to an important extent, mould anthropological thought. Dr. Davis believes that "it will serve to prove, or to confirm the proof, if confirmation be required, of the great value and importance of craniology, and also of the diversity of the origin of man, and in this way to reduce the former to legitimate scientific dimensions, and to help in delivering anthropology from the A B C condition in which it has long been arrested." Dr. Davis might have added, by the phrenologists and ethnologists of the type of the late amiable Dr.

Hodgkin. Dr. Barnard Davis, we see, appears as a strong collector of evidence in favour of the plurality of the human race, and in powerful antagonism to the Darwinian monogenists, whose belief, we are instructed, complies with the requisites of advanced science and Mosaic theology. Dr. B. Davis's facts certainly prove a great range of variation in the form of the skull ; and so far partially bear out the theory of polygeny. Of course, the question of unity or plurality will long remain the stock subject of dispute between anthropologists.

Hoc judex sibi postulat probari.

It has been so much mixed up with the lower sort of theological speculation, that cautious *savans* rather "fight shy" of the topic. Monogeny is undoubtedly the favourite doctrine with the Darwinites, the British Association, and the female sex ; whilst too large a section of anthropologists appear to reason in the following manner :—1. "St. Paul says, 'Who has made of one blood all races of men,' etc." [which, perhaps, he does not say.] 2. "White men are white, negroes black, and in America is the 'red man' ; I know nothing more about the distinctions between any of these, but can see Chinese are not like Irishmen." 3. ["Happy thought," worthy of Mr. F. C. Burnand.] "Let us play at polygeny." And they have played at polygeny *usque ad nauseam*, without throwing the slightest light on the facts on which a theory can alone be proved. It is surely better even to be a disciple of the cautious monogenistic school of Waitz, than thus to clog the wheels of science with speculations which, in the nature of things, can never be demonstratively proved. The late Dr. Knox never pledged himself either to monogeny or polygeny. Hints he dropped in some of his later writings which rather seemed to indicate that his creed might be formulated as digenism, the light and dark races of man being vehemently contrasted. We must apologise, however, for quoting Dr. Knox. Anthropology in 1868 is not in a state to appreciate the generalisations of the far-seeing, truth-seeking Nestor of our science. It is too much the fashion now to quote Knox by the whole paragraph, and too little the fashion to try and understand him. The art of easy and facile employment of "scissors and paste" is too common now, and we can distinctly imagine the satirical shrug of contempt with which the old master would have listened to the lucubrations of some of his modern quoters and admirers. We remember when we conveyed the news of Dr. Knox's death to one then, in 1863, studying elementary anthropology, but whose brazen voice has since rang through Europe on the Darwinian side, that the "rising man" said of the dead lion "Oh, it does not so much matter." We go farther still, and say it is a good thing that Robert Knox is taken away from this world of small and selfish thinkers.

But the epigram we have already quoted reminds us that—

“Non de vi neque cade, nec veneno,
Sed lis est mihi, de tribus capellis.”

and we therefore return to our sheep.

The early British skulls, described by Dr. Davis, are for the most part identical with those figured and described in his magnificent work *Crania Britannica*, and the wood-cuts are the same as those already known to craniographers. One of the Anglo-Saxon skulls (260) presents features which Dr. Davis is inclined to attribute to some influence operating during life and in infancy,” in opposition to the theory of Dr. Thurnam that it was posthumous. Dr. B. Davis considers it “clear that the distortion is artificial, and that it is likewise rendered more than probable that the Teutonic tribes at times adopted that very mode of deformation of the heads of their infants, which was practised by many American nations.” He further concludes that “the opinion that the greatly distorted crania found in Austria and Switzerland, and regarded by Retzius and Fitzinger as those of Avars, are really the relics of people of the soil, may now be considered to have received the confirmation anticipated.” The plate he gives on page thirty certainly seems to bear out this interpretation. We are not aware that Tacitus, or any ancient writer on the early Germans, gives any account of artificial deformation being practised by the Teutons ; this objection, however, proves little, as we know from experience how difficult it is to get information from savages as to the ceremonies immediately after the birth of the young.

Another highly interesting skull is No. 317, a convict executed at Norfolk Island. The sutures are here almost wholly effaced, the sagittal and lambdoid not being traceable. “Such synostosis forms the basis of all the peculiarities of the cranium, and most likely also of those of the individual to whom it appertained That his moral state was strongly controlled by his cephalic peculiarities there cannot be a doubt.” Dr. Davis proceeds to urge the permanent separation of such miserable persons, “not as criminals but as dangerous idiots.” Cylindrocephalus and scaphocephalus will thus become “Pleas of the Crown.”

With regard to the celebrated Hythe skulls, which were described by Dr. Knox sometime ago in the *Transactions of the Ethnological Society*, it is remarked their “brachycephalism, their size, and general forms impress the eye with a close resemblance to the skulls of modern Germans. This possibly indicates a purer Teutonic extraction for the men of Kent than for those of the other parts of England ; still our Jute skulls are dolichocephalic.”

No. 992 is described as “a very regular platy- and dolichocephalic

calvarium, described by Deville as the skull of Dodsley the celebrated publisher. But Robert Dodsley died at the age of sixty-one ; this is the calvarium of a more aged person, of at least eighty." A publisher's skull is indeed a treasure ! We remember that one of the most apish skulls we have seen is that of the unfortunate Teuton, General Würmser, in the Gall collection, at Paris ; but a publisher's skull ought, in the year 1868, to be endowed with all the imaginary beauties of Blumenbach's Caucasian.

The celebrated Neanderthaloid skull (No. 1029) is figured, and Dr. B. Davis actually takes the trouble to reprint his note condemnatory of the opinions and annihilating the facts of Professor Huxley. Dr. Davis has already circulated this note sufficiently amongst English *savants*, and can say in the words of Professor Huxley (preface to Dally's translation of *Man's Place in Nature*, p. vi.) : *La polémique est close, tous les anatomistes loyaux et compétents se sont depuis longtemps déclarés en ma faveur.*" This is not a time for Dr. Davis "thrice to slay the slain," or to attempt to pour water upon the murine that has already long been asphyxiated. We hope to hear no more of the Neanderthal skull, at least on this side of purgatory.

No. 1025 is the calvarium of an Irishwoman "found in a peat bog, county Wicklow, greatly shrunk and entirely converted into leather." The same conditions are also presented by No. 680.

Two Etruscan and one Oscan skull are in this collection, the cephalic indices of the two former being .83 and .80, and of the latter .79. The great tendency to brachycephalism of these early Italian races has been often urged by Dr. Pruner-Bey, who although he may perhaps exaggerate his theories, is entitled to the credit of being the first who actually *proved* the brachycephaly of the early Italian races. The subsequent researches of Nicolucci and others have placed that on a firm basis, which Pruner-Bey had only sketched out.

Many instances of the "derde gewichtsknobbel" (*Condylus tertius*) are cited by Dr. B. Davis, the most interesting perhaps being the skull 1050, an Italian, which presents an articular surface on the point of the accessory condyle, which has articulated with the processus dentatus of the epistropheus.

There are twelve Swedish skulls in the collection ; their average cephalic index is .75. All are dolichocephalic. In nine Lapp skulls the average is .80. Retzius gave .86 as the average of sixteen genuine Lapp skulls. We believe that the researches undertaken by Dr. Hunt, and which we hope to see soon published, indicate an extremely wide range of brachycephaly, and even of brachistocephaly, amongst the Norwegians. Dr. B. Davis does not seem to possess any Norwegian skulls. A Dalecarlian has .75, and an "old Norseman" from Lough Larne C. Antrim .73 as the cranial index.

Thirteen Veddah skulls, from Ceylon, are in this collection, a larger amount than we believe exists elsewhere, as well as twelve Cingalese. These are of great interest.

The Affghan skulls (six in number), "do not afford craniological support to the Jewish origin of this turbulent race." The whole part of the present work relating to the characteristics of the skulls of the various Jewish races is most interesting, comprising as it does an enormous series of skulls from every part of Judea. Our space, however, precludes a minute analysis of this work. We perceive that Dr. Davis is in strong opposition to Professor Owen with regard to the resemblance alleged by the latter to prevail between the Nepâlese skulls and those of the lower graveyard skulls of Great Britain. We transcribe Dr. Davis's argument :—

"The limitations of the Mongolian forms, and the variations they manifest in the different races in which they prevail, are not at present understood. It is possible that the crania yet to be enumerated in this catalogue may serve materially to increase information upon these points. The differences upon which their distinction rests are anatomical, yet deserve more to be regarded as diversities of proportion than as true organic differences. Still, they are not the less important or the less deserving of accurate discrimination. The differences between man and the anthropoid apes may also be viewed as merely differences of proportion. Hence, until the notions of those who have schooled themselves to regard such diversities to be owing to secondary causes merely, and to be unessential, are established, the differences of proportion which distinguish the skulls of the various races of men are fit subjects for minute study and deserving of high estimation ; for it may safely be said, with them are intimately connected every gradation of structure and function between the lowest savage and the highest European. Professor Owen maintains with great force and justice, yet it seems scarcely in conformity with his own principles, that the modifications of form and size which distinguish man from the anthropoid apes, are 'structures peculiar to, and characteristic of, human kind.' He does not consider his position to be invalidated when it is shown that the anthropoid apes have similar structures but of different proportions. With the same propriety it may be said that the conformation and features of the sub-Himalayan skull are peculiar to and characteristic of the aboriginal races found there. The argument is the same in both cases, and if valid in the one, must be so in the other."

The African skulls in this collection are of great interest. Dr. Davis contributes a most valuable note on the variety of the modes of torturing the incisor teeth, either as tribal marks, from caprice, or from fashion. He wonders that, "the chippings and filings practised on the

teeth of African tribes are much more superficial than those of the people of the Indian Archipelago, among whom the erosions frequently denude the dentine, and even pass through it to the pulp cavity."

The series of skulls for North and South America is of the greatest importance; at the same time, with regard to all skulls from Ecuador, Peru, and Bolivia, we would warn Dr. Davis, as well as other writers on the subject, that Mr. Squier, of New York, has in preparation a series of known facts for publication, which will overturn some of the rash theories as to the antiquities and Ethnology of South America. There is no subject on which the sciolist, or the pretender, can so easily generalise. A deceased and eminent anatomist used to be fond of saying, "If a man prove himself mentally incapable to study any branch of biological science with profit to himself or readers, let him write on ethnology." This may or may not be severe, but if it is true, South America affords a vast field for the exercise of the imaginative faculty. *En passant*, before Mr. Squier altogether clears out this Augean stable, we notice that Dr. B. Davis administers a severe *coup de grâce* to Dr. Daniel Wilson, with regard to Peruvian skulls on page 247.

The Australian skulls here described are especially noticeable for the resemblance which some of them, especially those from the Adelaide tribe (fig. 79, p. 259), bear to Prof. Huxley's Neanderthaloid river-bed types. That there is a certain rough resemblance between some river-bed skulls and some Australians is indubitable. That anything herein is shown but the demonstration of Meigs's law of homoiocephalic representation we deny.

Dr. Davis's intimate connection with Dutch Anthropology has enabled his correspondents at Batavia to supply him with many most interesting skulls from Polynesia, amongst others one a Fatean (figured by him in his memoir on the peculiar crania of the inhabitants of certain groups of islands in the Western Pacific, pl. ii, fig. 1 and 2), "a remarkably and exceptionally low prognathous skull, with inordinately large mouth and jaws; in its general form closely resembling the elongated distorted crania of the early Peruvians, but without any artificial deformation. The alisphenoids are wholly excluded from the parietals. The most pithecid cranium in the collection. The very *beau idéal* of the skull of a savage." The plate referred to of this skull certainly shows one which resembles closely some of those figured by Vogt, in his late magnificent Memoir on Microcephaly; but we are sorry to see in Dr. Davis' controversial note on this skull, a severe and unmerited criticism on Prof. Owen's words, "prognathism is probably concomitant with late weaning of the infant." This, Dr. Davis seems to imagine, means that the late weaning

of the infant produces prognathism ; his dread of "Darwinism, &c.," seems to have led him to forget to take down his "Johnson's Dictionary," which would have told him that concomitant meant "conjoined with, concurrent with, coming and going with, as collateral, *not causative or consequential.*" Such a slight precaution might have induced him not to pen the superfluous note on his 312th page.

Such a trifling defect as this, however, does not seriously detract from the merits of this magnificent contribution to anthropological literature. The valuable tables at the end, and the general spirit of honest inquiry, critical thought, and careful and learned erudition, all tend to render this work one of the most useful in the hands of all who study the manifold and various diversities of crania in the races of man.

C. C. B.

ANTHROPOLOGY AND ETHNOLOGY.

A Letter from JOSEPH BARNARD DAVIS, M.D., F.R.S., F.S.A., V.-P.A.S.L.

SIR,—During the late discussion of an amalgamation of the two London Societies for the study of the science of man, which seems to be so desirable and natural, and so likely to be beneficial to all those who take an interest in this study, and would relieve country members like myself from the necessity of paying two subscriptions instead of one, I was particularly struck with the warmth and tenacity manifested for the retention of mere names.

The science has acquired the denomination of *Anthropology* in every part of the continent, in America, and in Britain. There are now Anthropological Societies in Paris, in Moscow, in Madrid, in New York, as well as in London, and also in Manchester. There is a Professor of Anthropology attached to the Jardin des Plantes, who has written a most elaborate report on the progress of anthropology. There is an *Anthropological Review* published in Germany, as well as one in London. And the term anthropology has become too extensively diffused, being understood as the proper name of a distinct new science, so fashionable or popular, that there is no hope of altering it. Whether rightly or wrongly, the science will inevitably for the future be called anthropology, whether we take it in good part or not. Perceiving this, and regarding names for no more than they are worth, I was rather surprised to find some of the more accomplished of its cultivators carried away by their feelings, and condemning the term as if it could not be tolerated. I was told by one friend, who ap-

peared to regard it as a very objectionable name, that Anthropology has been used in various senses quite different from the one now attributed to it. This is undeniable, but has no prejudicial influence on its present recognised meaning. Might not the same objection be made to the name chemistry ? I have a book entitled *Lectures on Anthropology*, by Prof. K. E. Von Baer, which is devoted to anatomy and physiology ; another of the same kind, by the late Prof. Rudolph Wagner, which is still worse, entitled, *The Natural History of Man. Handbook of Popular Anthropology*. The gentleman above alluded to assured me that the name *ethnology* was selected at the formation of the Ethnological Society, after much deliberation and discussion, with a full appreciation and acknowledgment of its fitness to embrace and express the proper subjects of the science. I take his authority to be quite sufficient for this statement, although so little is on record upon the point.

I rather think this name took its rise in the "Société Ethnologique" of Paris, established in the year 1839, for "the study of human races according to historical traditions, languages, and the physical and moral traits of each people;" which Society was the result of the efforts of Dr. W. F. Edwards, and of his classical work. In the preceding year, the Society for the Protection of Aborigines was formed in London, and its founders exerted themselves to get a similar society established in Paris. This object could not be accomplished ; but the French *savans*—whether they perceived the futility of the protection society it cannot be said—were willing to found a society for a scientific object. This they named "Société Ethnologique."

It was not till the 7th of February, 1843, that the "Ethnological Society of London" was started, at a meeting which took place at the house of the late Dr. Hodgkin. At this meeting an essay, by Dr. Ernest Dieffenbach, who had just returned from his travels in New Zealand, was read, on "The Study of Ethnology."* In this essay he says, "Ethnology begins with ethnography, with an authentic description of the physical condition of each nation : and for this purpose it will be necessary to collect everything that will throw light on this

* *Journal of the Ethnological Society of London*, vol. i, 1848, p. 15. Possibly one reason might have influenced the founders of the Ethnological Society, which was in some measure a scientific offshoot of the Aborigines Protection Society, for not adopting the name Anthropological, in the fact that at the time there already existed a society calling itself the "Anthropological Society of London." This society, which never rose to any importance, was a sort of Phrenological Club. It was started in February, 1837, and had five years of activity, merging ultimately in the "Christian Phrenological Society."

subject." He evidently considered this description should be based on the anatomical and physical characters of these nations, as he says immediately after, "It is not sufficient that authentic skulls should be collected of all races, or casts of such ; but whole skeletons." It is obvious, from an announcement which appeared in the *Medical Times* of February 11, that the whole of the vast subject of the natural history of man was designed to be included in the scope of the new Society ; that the publication of papers, the formation of a museum and of a library, and the rendering pecuniary assistance to travellers, were all contemplated.

Not long after the formation of this Society, Dr. Hodgkin read a paper "On the Progress of Ethnology." The opening sentence of this paper showed that he had no prepossessions against the name by which the science is now designated, and is not calculated to encourage the notion of those who maintain the superiority of the name of ethnology ; for the principal founder of the Ethnological Society expresses himself thus : "The study of man in its most extended sense, to which the term anthropology is fitly applied, is a most complicated subject, etc."^{*}

On the 22nd of June, 1847, Dr. Prichard, the then President of the Ethnological Society, delivered his anniversary address, "On the Relations of Ethnology to other Branches of Knowledge," in which he makes this remark, which should be borne in mind when we come to the statements I shall have to make by-and-bye : "Prof. Blumenbach was, in reality, the founder of ethnology," so that it is clearly Blumenbach's science, whatever that is. Prichard does more, and goes further ; he undertakes the definition of ethnology, where we shall see his conception of its meaning. "Ethnology is the history of human races, or of the various tribes of men who constitute the population of the world. It comprehends all that can be learned of their origin and relations to each other. It is distinct from natural history, inasmuch as the object of its investigations is not *what is*, but *what has been*. Natural history is an account of the phenomena which nature at present displays. It relates to processes ever going on, and to effects repeated and to be repeated, so long as the powers of nature, or the properties of material agents, remain unchanged. Ethnology refers to the past. It traces the history of human families from the most remote times that are within the reach of investigation, inquires into their mutual relations, and endeavours to arrive at conclusions, either probable or certain, as to the question of their affinity or diversity of origin."[†] If this be a true conception of ethnology, there need be no

* *Ibid.*, p. 27.

† *Ibid.*, p. 302.

hesitation in saying that it is a much less comprehensive term than anthropology. Most likely Prichard did not think it applicable to the whole subject of the natural history of man, as he has explained in the above passage, but rather to the history of races, and hence he has, I believe, avoided the use of the word ethnology. In his well-known dedication of his great work, *Physical Researches*, to Blumenbach, he speaks of Blumenbach as the first explorer of that department of knowledge to the cultivation of which the book is devoted. In this work Prichard frequently makes use of the word "ethnography," but I am not aware that he employs either ethnology or anthropology.

In the publications of the Société Ethnologique of Paris, the first place was devoted to a reprint of Dr. W. F. Edwards's, "Caractères Physiologiques des Races Humaines." It is particularly worthy of notice, that the second paper of the volume is also from the same pen of Dr. W. F. Edwards, then the President of the Society. The title of this paper is, "Sketch of the Actual State of Anthropology, or the Natural History of Man." In this memoir, which appears to have been read soon after the formation of the Society, the author uses the word anthropology in the sense of the natural history of man. "L'Histoire naturelle de l'homme, ou anthropologie," and he never recurs, save on one occasion, to the word ethnology. This is when he reverts to his own essay on the physiological characters, where he uses this remarkable expression. "Il n'y aurait pas d'ethnologie si les races ne pouvaient pas durer un temps illimité. Il est évident que ce principe est sous-entendu dans tous les ouvrages ethnologiques." We might suppose that Dr. W. F. Edwards regarded ethnology in the same light as Dr. Hodgkin and Dr. Prichard, as restrained to the history of races or nations.

We are thus, as it were, thrown back upon Blumenbach, who has been allowed, on all sides, to be the founder of the science, and are led to inquire under what term he signified the science he had originated. Neither in the first nor the second edition of his *De Generis Humani Varietate Natura*, did he employ either of the terms anthropology or ethnology. In the preliminary remarks to his first *Decas Craniorum*, he uses the word "anthropological" in its present sense, and also speaks of his "apparatus anthropologicus." This decade was published in 1790. It seems reasonable to conclude that previous to this time Blumenbach had felt the need of some general name by which to designate his collections, designed to illustrate the Natural History of Man, and had appropriated the denomination "anthropological," which may have been employed in different senses previously, to this purpose. We shall find that ever after this period he applies this term to them. Blumenbach, like other great men before him,

when he began to collect skulls and other objects to elucidate the natural history of man, had no notion of founding a new science; and never, at any period, formed a positive conception of such a science as we understand it, or spoke distinctly of it. It was left for his disciples to name the department of knowledge, the cultivation of which he first explored.

In the fourth *Decas Craniorum* (1800), he tells us, in the opening remarks, that twenty years had elapsed since he began to form his "anthropological collection," of which, after this, he usually speaks in the same terms. But already, in the year 1795, in the third edition of his *De Generis Humani Varietate Natura*, he had given an index or catalogue of his anthropological collections of skulls, of fetuses, of hair, and of drawings and paintings.

It seems to me, if what I have written be correct and will bear the test of examination, that we may safely attribute to Blumenbach the original application of the term "anthropological" to those things which were connected with the science which he has the great merit of having founded. This led his followers to the term Anthropology as the proper name of the science itself abstractedly considered.

Mr. Bendyshe, in his laborious and learned History of Anthropology,* tells us that the term was first employed by Magnus Hundt (A.D. 1501), as the title to his extraordinary work on anatomy, *Anthropologeion*, printed at Leipsic. This black-letter book, in quarto, consists of 120 leaves, and is ornamented with rude woodcuts, depicting very gross inaccuracies, as one undivided lung in the chest. The intestinal canal consists of a series of Staffordshire knobs.†

Taking the account now given to be tolerably correct, it seems that we have the choice of two terms, one of which was introduced and used by the acknowledged founder of our noble science, Blumenbach, to express, if not the science itself, all that appertains to it. The other, which was selected by the French for the name of the society founded in Paris by Dr. W. F. Edwards, who, nevertheless, himself used the term Anthropology as a synonym for the Natural History of Man. This term, ethnology, seems to have been avoided by the great English writer upon the subject, Prichard, and was actually defined by him, not in the comprehensive sense in which the word anthropology is now universally used, but as merely the history, or the past, of human races. Believing all this to be true, I may be pardoned for expressing my surprise at the conclusions which my esteemed friend‡

* *Memoirs of the Anthropological Society of London*, vol. i, p. 352.

† The full title of the book is *Anthropologium de Hominis Dignitate*.

‡ Choulant. *Geschichte der Anatomischen Abbildung*. Leipzig, 1852, s. 177.

above alluded to, has arrived. Certainly, if we are permitted to have a choice of a name for a united, strong, and comprehensive society, there cannot be the slightest doubt about what that name should be. Personally, I am indifferent about names ; practically, I am about as much attached to one of the present societies as the other (whether both are equally attached to me I cannot tell), having been connected with the one about ten years, and with the other almost from its foundation. But politically, I am not fully satisfied with my decision upon this and similar points, until after the Fellows of both Societies have been consulted. Unless the amalgamation of the Societies can be made to promote the study of the science, to enlarge and strengthen all its present appliances, let us, by all means, go on as we are ; a generous rivalry is not a great evil. I, for one, as a country Fellow, am not unwilling to pay two subscriptions where one would have done ; but I must protest against an old practice in the Ethnological, now reformed, that of receiving the subscription year after year without making any return. I remain, Sir, yours faithfully,

J. BARNARD DAVIS.

Shelton, Hanley, Staffs. Aug. 8, 1868.

ON INTELLIGENCE, AND ITS RELATION TO INSTINCT.*

By M. COUDEREAU.

WHAT is man ? This is actually the highest zoological expression ; a more complex animal, which, right or wrong, is persuaded that it is more perfect than all the rest.

His existence, like that of all beings in nature, is subjected to external conditions to which he must accommodate himself on pain of perishing.

For him, as for all other beings, this condition of subjection constitutes *his wants*. The wants vary in every creature according to its form and its chemical and organic composition.

* We have much pleasure in introducing to the notice of our readers the writings of one of the many distinguished French Anthropologists who are as yet little known in this country. We cannot but think that, from this specimen of M. Coudereau's writings, our readers will be glad to know more of him. This paper is translated from the *Bulletins* of the Paris Anthropological Society, and is slightly abridged.—EDITOR.

Every creature is guided towards the means of satisfying its wants by a special faculty which is the corollary of its wants ; this is *instinct*. In every creature the instinct varies according to the organic and chemical composition of the individual, according to the form, the functions, the number and the grouping of its organs. Identity of conformation necessarily involves identity of wants and of instinct.

In running through the series of creatures, from the most simple to the most complex, we see that the same organ or the same tissue imparts to the creature, to the formation of which it contributes, the same wants, the same instinct ; and that every addition of a tissue or an organ, adds a want or an instinct more to the new animal.

I say "organ or tissue," in fact, in the most simple creatures in which life is scarcely yet manifest, we find only a cell or an agglomeration of cells. The cell is both the whole creature and its sole organ. The manifestation of life is confined to absorption and exhalation—this might be called the cellular instinct.

Other creatures present the cell associated with other tissues, the ciliary filaments, for instance, which endow it with motion. Every new creature is composed of more and more complicated tissues ; the fibrous tissue appears, then a rudimentary digestive organ (first a sac with one aperture, then a tube with two apertures), then distinct respiratory organs followed by all other organs. The wants and instincts of each keep pace with the same progression, and the same tissues perform always the same functions. Thus the cell shows itself in every creature, and always with its faculty of absorption and exhalation. In short, I call instinct that organic force, by virtue of which an organ or a tissue performs its functions to satisfy its special wants. The instinct of an animal is the ensemble, or the sum of the instincts of its different organs.

Where does instinct end ? where does intelligence begin ? It seems to me very difficult to fix the boundary. I shall call intelligence the faculty by virtue of which the animal may, by making use of its will, combine two or more of its individual instincts, for the satisfaction of a want of which it is conscious.

It is in this way, as G. Leroy and M. Toussenel have observed, that animals frequently seem to perform acts by instinct which are certainly due to intelligence. Although in general the term "intelligence" is applied only to man, it appears to me evident enough that both the animal and man possess instinct and intelligence, and in my opinion man could possess no intelligence but on the condition of possessing instinct.

Man is a compound of numerous organs, his faculties are, therefore, a compound of numerous instincts. His organs are more complex than those of any other animal ; it must necessarily be the same as regards his wants and his instincts.

It has been observed that the organs of the tissues of the animal economy may be modified according to the use made of them. By causing the muscles frequently to contract, their volume increases ; by leaving them for a long period at rest they diminish in volume, and may, if the inaction is, as in paralysis, indefinitely prolonged, disappear and be replaced by an adipose tissue ; the instinct of the muscle (contraction) not being satisfied induces its destruction.

For the same reason an articulation kept immovable for a long time may terminate in ankylosis. I am convinced that we could, on the other hand, by imposing upon our limbs certain movements exaggerating the animal muscular effort, not merely greatly modify the existing muscles, but perhaps create new ones.

In persons who by practice develop the agility of their fingers, the divisions of the flexors and tensors are much deeper (especially in musicians), and I have no doubt that under the influence of constant exercise, some muscular fascicles will not merely increase in volume, but will detach themselves from a muscle to become an independent muscle. It is in this way that the proper flexor of the thumb was formed, which does not exist in most apes. What is evident as regards the muscles, holds true with regard to the brain.

Animals in general, and man in particular, may become modified or modify themselves in their organs and their instincts. The physical differences which distinguish man from the animal are striking at first sight, but after due examination the differences appear less important than the resemblances. The organs are the same as those in animals, only modified in form and disposition ; his tissues are exactly the same. From the identity of the nature of all the organs in man and animals, I infer the identity of the nature of the wants, which are the motives of them, and of the instincts which impel them to satisfy them. There are only found more or less pronounced differences in the corresponding instincts, which are always connected with the differences in the physical organs which give rise to them. Man chiefly differs from all other animals by the enormous development of his brain ; and this development is greater still, than appears at first, when we consider that the grey substance, the really active part of the cerebral matter, describes a number of undulations, and covers the convolutions.

The government of the simian tribes greatly contributes to the improvement of the species. The chief is always the best endowed male in his state, as he has only obtained his dignity by his superior prowess, agility, and cunning. The seigniorial rights over the fair sex which he claims, make him the veritable father of the fatherland. There is a continual selection and, consequently, progress.

Apart from these conditions of progress, constant and successive,

are there other accidental causes? Perhaps so. Certain conditions of hyperæmia, of moderate congestion, by increasing the functions of any portion of the brain, might, in my opinion, accelerate the progress of the species.

What, in fact, is the influence which raises in us certain ideas which persist, despite our efforts to drive them out of our memory? Under what influence become our passions exalted? Are these phenomena simply due to the predominance or action of one convolution or the other? But then, the same passional phenomenon would constantly be produced in each individual, and would, at every moment of his life, dominate all other faculties. Experience, on the contrary, demonstrates to us that under different influences, the various cerebral instincts are put into action by turns.

What, then, is, in the animal economy, the agent which thus transports the dominant action now to one, now to another organ? I look upon the circulation as being this special agent, without attempting to explain this variability of the circulation. I believe it due to reflex action; a sort of reaction which results immediately from an external or internal impression, like that which makes us blush or grow pale, by reacting on the capillary circulation of the face. I base my opinion on the circumstance that, under the influence of a languid circulation, the function of the organs becomes weaker, or may cease altogether. On the contrary, by augmenting the circulation, the action of the organs is also augmented. When, for instance, we are exposed to great cold, the circulation is nearly nil in the fingers; the sensibility diminishes, we can scarcely grasp an object, and even the lips refuse the articulation of sounds. This applies also to the brain. The retarded circulation diminishes the action of the nervous centres, and this diminution may lead to syncope.

The augmentation of the circulation exaggerates the action of the cerebral faculties. Excess may induce delirium; beyond this, apoplexy may ensue. The morbid afflux of the blood to the convolutions determines, according to the condition in which it takes place, delirium, mania, insanity, apoplexy. Confined within the limits of health, it may give rise to genius. The richness of the capillary net in several parts of the brain is an element which, in my opinion, has not sufficiently been taken into account in the study of the nervous centres, and which ought to have a place by the side of the development of the convolutions and the measurements of the crania.

As already stated, cerebral gymnastics tend to increase the volume of the convolution exercised; but that which precedes and determines the augmentation of the volume, is the greater action of the local circulation, a greater richness of the capillary net. In the adult the

cranial parietes resist the development of the convolution, and the progress may confine itself to the augmentation of the vascular net, and terminate only in the augmentation of the volume in the descendants, inheriting the paternal active circulation, and in whom the flexible parietes of the cranium will permit the consequent development.

I consider, in our first parents, as an agent of progress, every cause tending to enrich the capillary net of the brain, and thus to increase momentarily or constantly the circulation.

I have said that man had to create his language; he was also obliged to extend it in order to express his ideas in proportion as they increased. But man is not alone in possessing a language. All species of animals possess one, varied, but sufficient to express their ideas. Most of them possess only the cry; but they give to it, according to circumstances, and according to what they wish to express, a special character. They vary the *timbre*, repeat, shorten, or lengthen the sounds. They also possess gesture; showing, by their attitudes, what they have to say. And animals of the same species always understand each other.

Allow me to analyse, for a moment, the language of a member of our poultry-yard. When a certain number of pullets peaceably feed together, scratching the soil, you hear a monotonous chirping, a series of incoherent co-co-cos, which remind one of the tittle-tattle of old gossips. But now the breakfast hour draws nigh. The first which feels hungry raises its voice; every syllable uttered is followed by a special rolling. Its companions understand the call, and make a chorus; and all proceed to the habitation of their mistress, loudly proclaiming their wants. A bird of prey hovers above them. They emit a long cry—the cry of fear. Soon another cry is heard, as long, but more acute than the first—it is the cry of pain. The bird of prey has seized one, and carries it off. At another time you hear a festive cry; the hen has laid an egg. You may hear this song also in another diapason. It is the sound of anger, of indignation; the hen finds her nest occupied by a rival, *inde ire*.

The hen now becomes a brooder; she understands all the duties of maternity. She likes even her future progeny, and speaks to it in a language she never used before. It is now a cluck. When, for a moment, she quits her eggs to take food, she returns as soon as possible, her cluck is a busy cluck, and she picks away at her companions, who would make her lose time; but her companions understand her reasons and respect them. The chickens are now hatched. The cluck is louder, prouder; it says, "I am a mother!" She calls her brood. A dog now approaches; the cluck becomes rapid, telling

her chickens that there is danger and that they should run. Her cry thus varies in character, according to the imminence of the peril, from a simple admonition to extreme terror.

When she finds a choice morsel, she breaks it with her bill, and calls her young with a peculiar cluck which they well understand. The cock invites his hens with a similar cluck to partake of some dainty. Here we have a whole vocabulary, sufficing for the wants of the species, by means of which they are able to communicate all the ideas conformable with their nature.

Each animal species possesses a language related to its mode of life and its instincts. Their language consists both of voice and of gesture. The language of gesture is still more extensive than that of voice, especially in the higher animals ; and when they find themselves placed in a new and unknown condition, they use gestures in order to express the idea.

The dog, that faithful companion and intelligent friend of man, does he not by his expressive gestures make known to us what he wants ? Let us observe him in moments of joy ; how expressively does he manifest the pleasure of seeing his master after a long absence ! what rejoicing in his bark, his bounds, his caresses ! What eloquence is there not in his attitude, his profound grief, when his master is angry with him ! I cannot but repeat that popular (not vulgar) phrase, he only wants speech. The play of the physiognomy, which with gesture constitutes mimics, plays a certain part in the language of animals. Concentrated in the action of skin, muscles, which are, much more than in man, developed in the whole surface of the body ; then in the contractility of the iris, the muscles of the eye, the eye-lids and eye-brows, it extends to the nostrils and the lips (ruminants and solipeda) ; the movements of the upper lip are much more extensive in the felidae and canidae. The contraction of the superior lip and the nostrils expresses, as in man, anger and defiance. In the dog, especially hunting dogs, we perceive a rudimentary smile ; the ape apparently laughs.

Every animal thus possesses a language sufficient to express its ideas, not merely to individuals of the same species, but to animals of a different species. Those who have no organs of voice, make themselves understood by mimicry (bees, ants). In man the action of the skin muscles chiefly shows itself in the face. This mode of expression being thus concentrated in one locality, is stronger in him, but he does not possess it exclusively. It is more developed in civilised people ; savages are remarkable for the impassibility of their features.

It has often been repeated that man alone is in possession of what

has been called speech, and that this character alone is sufficient to distinguish him from animals; this is prejudice, which falls to the ground before sound observation. First of all, it is false that speech is due to an innate instinct of man; he does not naturally possess speech, that is to say articulate language; he has the capacity of acquiring it, that is all. If it were otherwise, there would be but one language for all men. He speaks because he hears others speak, and he imitates their sounds; individuals born deaf do not speak, because they have no model to imitate. The faculty of speaking is thus simply one of the manifestations of the faculty to imitate. Does this faculty of imitating articulate sounds belong exclusively to man? No, he shares this faculty with other animals (magpie, raven, parrot, starling, &c.); we only possess this faculty in a higher degree, as is the case with all the faculties which constitute what we call "his intelligence."

A tribe of apes more advanced than the rest in the way of progress, the individuals composing it became men, and, under the pressure of necessity, acquired, by the sole force of their will and their labour, that which they had not received from nature; speech was thus one of their first conquests. In order to account for the intellectual development of the new-born humanity, I sought for a starting point in humanity as it exists, in order to proceed from the known to the unknown. I took as a term of comparison the intellectual development of the infant. Before becoming a man the infant is an animal; it is the work of nature before becoming the product of civilisation. Nature has created it the equal of all other animal creatures; as to all other animals, nature has endowed it with organs, wants, and instincts. As to all others, nature has given it a language—not speech, but the cry which it manifests almost before it is quite born. From that moment it feels a want which it expresses by a cry; its wants are not many at first, to suckle and to sleep. They multiply by degrees, wants to see, to move, to grasp objects; all these wants and desires are still expressed by cries. These cries become modified, for the child listens and imitates; he at first imitates the intonations of the words, which he cannot yet articulate. He only, at a later period, very gradually, and with much trouble, succeeds in pronouncing some scarcely intelligible words; when about ten or twelve months old, the infant articulates distinctly *papa*, *mamma*; when two years old, he can, more or less, distinctly enunciate a phrase, but it is only in the third or fourth year that the child can be said to speak, and in order to obtain this result his desires must be excited, which are not satisfied until he pronounces a syllable, or a word; and every syllable, every new word is only acquired by great efforts, not merely on the part of the child but even in the adult. I appeal to all those who in learning

a foreign language come to pronunciations unknown in their native language. At last all difficulties are overcome, the child speaks, "he can say everything," as the nurse has it ; but with such patience and care, and in so long a time, a parrot might nearly learn as much.

In the child on the road to learn to speak, there is a motive which impels him, which is his wants. The first words he pronounces are the names of persons who only study his wants, namely papa, mamma. It requires the ear of a mother to understand the musical thoughts of her child before he expresses it in articulate words. Time progresses, and the child studies, works, and becomes a man, and, like the greater part of men, after a life of work and study, each assimilates according to the sphere of his aptitudes, a portion of the requisitions of humanity. But we must not forget that new conquests are rare ; most men, at all events, arrive at the term of their existence, having passed it like apes and parrots ; they have imitated acts and words ; imitated nothing more. Infant humanity could not have proceeded otherwise than the infant man proceeds now in the acquisition of speech. The progress then was infinitely slower, this seems the chief difference to note.

A simian tribe occupies the highest degree of the zoological scale ; the convolutions of the posterior lobe of the brain have become developed, and with it the love of family. The frontal convolutions have also expanded and have enlarged the intellectual horizon. The animal has become more observant and more imitative, the modification of the organs induced the modification of wants.

The instinct of society and the instinct of observation have become developed, and created the want of communicating to each other the results of the observations and sensations. Cries and gestures were no longer sufficient, and the creation of better means became a necessity.

The primitive man, did he, as some linguists believe, possess "a language formed all at once, issued instantaneously from the genius of each race ?" This proposition seems to me inadmissible ; I do not think that speech is the result of "a primitive intuition," nor that in every language "grammar is a primitive fact," beyond which we cannot ascend. I do not purpose examining here the question of language from a linguistic standpoint, as this science does not appear to me capable of solving the problem as I put it.

Before the creation of the languages, which linguists have studied, analysed, and compared, there must, during many centuries, have obtained a condition about which we possess no data. We can only ascend to the cradle of language by "legitimate inductions," and as we are obliged to have recourse to hypothesis, I ask permission to say what appears to me most probable.

The primitive man, observing the cries and gestures of animals within

the field of his observation, interpreted the sense of them and imitated them to express analogous ideas. He heard different sounds of nature (of wind, thunder, rain, &c.), and translated, by a more or less perfect imitation of this noise, the impressions analogous to those he felt. The first language must have been mimicry and imitative music (Renan, *Origine du Langage*). How did man pass from this form of language to articulate speech? It must have occurred to him naturally, gradually to articulate all the sounds whilst attempting to imitate all the noises that struck his ear. The imitation of the cry of the animal became the name of that animal. The first words must have been nouns only; then by the extension of the sense or the character of the animal or of a thing, the same word became a substantive noun or an adjective, according to circumstances, with a simple shade perhaps in the pronunciation or in the gesture. The verb was subsequently formed in the same fashion by a slight modification of the primitive substantive.

The child does not proceed otherwise in the fabrication of a word he wants to communicate his impressions; in his language "burn" and fire are synonymous, and frequently employed indiscriminately; and so it is with the rest of his vocabulary.

When usage adopted conventional sounds for conventional objects, the primitive imitation of natural sounds was gradually abandoned, and the starting point lost.

How is it that all languages, though of a similar origin, differ so much? The reason is very simple. The same animal has generally different cries, and modifies its cries according to circumstances; each tribe gave it a name by imitating one of these modifications, whence profound differences resulted. Every primitive tribe was composed of a small number of individuals; there must therefore have been an incalculable number of primitive languages. At a later period these tribes communicated with each other; alliances and conquests caused some languages to disappear, whilst such as survived became enriched; and since the beginning the number of languages diminished like the number of peoples, but each language becomes enriched by a number of expressions borrowed from the language to whose disappearance it has contributed; this will no doubt continue until humanity will constitute but one people, speaking the same language. In short, articulate language in man is neither an innate nor an exclusive faculty. According to G. Leroy, animals also possess an articulate language, without which they could not combine for certain acts, such as the relays in hunting animals (wolf). Man acquires the faculty of speech by his memory, labour, and imitation—the parrot does no more. From a linguistic stand-point, this faculty is in its nature identical in man and animal. Man expresses his ideas

by the aid of a language he has made his own ; all animals do the same. He can articulate sounds ; other animals can imitate sounds as well as he can. He presents simply in this respect a greater development of a faculty *common* to all social animals.

ON THE CRANIA AND BONES OF LES EYZIES ; OR, THE ANCIENT CAVE-MEN OF PERIGORD.*

By Prof. PAUL BROCA, Secretary-General of the Anthropological Society of Paris, and Honorary Fellow of the Anthropological Society of London.

No discovery could offer more interest to Anthropology than that of these bones. It is the complement—one would almost say the crowning work—of the important discoveries which Mr. Lartet, sen., and his much lamented fellow-labourer, M. Christy, made four years ago in the caverns of Perigord. The numerous objects found in these caverns have not only furnished to us the most incontestible and striking proofs of the contemporaneity of man with the mammoth, but they have revealed to us the most curious details of the life and customs of the ancient cave-men of Perigord. The anatomical characteristics of the intelligent and artistic race, whose admirable carvings and sculptures are to us a subject of astonishment, yet, however, remain to be disclosed to us. The latest researches in Les Eyzies cave, by M. Lartet, jun., permit us now to bridge this gap. No doubt can be raised as to the authenticity and high antiquity of the bones which these researches have brought to light. The stratigraphical details furnished by this gentleman, prove not only that they are as ancient as, but that they are even more ancient than the carved objects of the great cavern of Les Eyzies ; the latter correspond to the epoch in which the reindeer was already predominant among the fauna, while the former seem to approximate rather to the time of the mammoth ; and although a very long period between these two epochs might have elapsed, we are compelled to believe that the passage from one to the other took place gradually, without any ethnographical revolution ; that the same race remained without interruption in the same place ; and that, if the bones which we are about to examine, are not those of the *artistes* of the reindeer period, they are at least those of their ancestors. The remains of quaternary man that we

* This article is the most important part of a long Memoir by Prof. Broca, which will appear in Lartet's and Christy's *Reliquiae Aquitanicae*.

have examined hitherto, belong for the most part to individuals of short stature, in whom the cranium is of small capacity, and the face more or less prognathous. We should hence conclude that the primitive population of Europe either belonged to a Negroid or Mongoloid race (according to either hypothesis), in whom the stature did not much exceed that of the modern Laplanders. We consider that this opinion rests on well-ascertained facts. It rests also on a pre-conceived idea which we have for a long time opposed, viz., that there is in quaternary Europe only one single race of men. Based on the ethnographical theory that the diversity of the human race results from the influence of media (such as climate, food, soil, etc.) we admit that the typical differences must be effaced as we pass backwards in time; and when the polygenists objected that the separation of the principal groups of races was already complete from the origin of historic time, we replied, that it was not in very recent times, but in the immense and incalculable periods which preceded them, that the divergencies from the original type were manifested. Reduced to these terms, the question of the unity of the human race became adjourned to the moment when palaeontology should have discovered some remains of primitive man, or at least those of races of the quaternary epoch. We should consider that these races, separated from us by thousands of ages perhaps, and of a certainty infinitely more approximated to the human origines than the most ancient of the historic races, must present, if not an absolute uniformity, at least a manifest convergance towards the type of the common mould in which we can conceive them to have been cast. But it happens here, as does so frequently happen in other things, that the facts brought to light contradict a pre-conceived theory.

The quaternary race of Les Eyzies, differs from the quaternary race of the caverns of Belgium, as much as the most dissimilar modern races differ among themselves. The contrast is complete, not only when we consider the conformation and volume of the head, but also when we consider the form and dimensions of the limb bones. The greater part of the bones which have been discovered belong to three individuals. There are three crania, of which one is perfect. Not one of the skeletons is capable of being put together, but in closing the bones of the trunk and of the members, in accordance with their shape, colour, and density, we are able to separate them chiefly into three groups, which, in respect of the character referred to, appear to belong to the three crania. There are, besides, some small fragments of a cranium belonging to an adult, and some others of one belonging to a child. The number of bodies deposited in this burying place was five; it can hardly be said that there were more. It is, therefore, not

impossible that all these individuals should have been members of one family. Of the relics of these five persons, we can only speak of three, the remains of the two others being represented by only insignificant fragments.

The author then minutely described the character of each of the bones, and said, if, in conclusion, we cast a general glance over the divers elements that we have just examined, we shall find in the race of Les Eyzies a remarkable combination of characters—some of superiority and some of inferiority. The great capacity of the brain, the development of the frontal region, the fine elliptical form of the anterior part of the profile of the skull, the orthographic disposition of the superior facial region (from which arises a considerable enlargement of the facial angle of Camper) are incontestable characteristics of superiority such as we are accustomed to meet with only in civilised races. On the other hand, the great breadth of the face, the alveolar prognathism, the enormous development of the ascending ramus of the jaw, the extent and roughness of the surfaces for the insertion of muscles, and especially of the masticators, lead to the idea of a savage and brutal race, and we are led to suspect that the woman has been slain by a blow with a hatchet, and that the thigh-bone of the old man bears traces of an old and serious injury. Examine again the simplicity of the sutures, and then probably equally simple obliterations, which pass before backwards, as in the case with barbarous peoples. Let us add, that the shape of the bones, and in particular the extraordinary development of the ridge of femur, indicate a high degree of muscular power. Let us review these three characteristics, the excessive breadth of the ramus of the jaw, the sub-coronoid curvature of the ulna, of which the coronoid cavity is extremely shallow, and above all the flattening of the tibiae, are more or less manifestly simious; and we shall thus complete the picture of a race which in some of its characteristics attained the highest and noblest degrees of human morphology, and in others descended even below the most degraded anthropological types of the present day.

This antithesis, at first sight, appears paradoxical, but is it not the anatomical confirmation of that which the discoveries of Messrs. Lartet (senior) and Christy have already taught us concerning the life and habits of the denizens of the cave of Perigord. The men who, in the quaternary epoch were the initiators of progress and the precursors of civilisation ; who developed the remarkable industry and wonderful arts of which we to day admire the products, must of necessity have combined with the intelligence which invents and brings to perfection, much strength of body and habits of war, and of the chase, which alone could then assure them security and subsistence. Now-

a-days, with our irresistible metals, with our terrible fire-arms, with our land cleared and cultivated for centuries, with all the resources which agriculture and commerce furnish us, we can live in peace the life of the civilised ; but in those days, when immense forests, which the stone hatchet was incompetent to fell, covered the greater part of the soil ; when, in default of agriculture, man was compelled to seek a subsistence by the chase alone ; when the immediate necessities of existence demanded a continual warfare against such animals as the mammoth ; and, lastly, when the hunting grounds, the sole resource of one tribe, would have to be defended against the incursions and attacks of neighbouring tribes, it behoved them, under penalty of disappearing from the face of the earth, to accommodate themselves to circumstances, and to live the violent life of barbarians. The troglodytes of Les Eyzies were, therefore, barbarians in common with all the human kind of their day, and we ought not to be astonished that such conditions should have been the cause of very marked impressions on the skeletons of these people. But these barbarians were intelligent and perfectible, and whilst continuing their struggle against nature and against their fellow-men, they managed to leave themselves sufficient leisure to increase their knowledge, to develop their industries, and even to elevate themselves to the cultivation of the arts. Such precious aptitudes, rare in all times, but truly extraordinary in regard to the period in which they were manifested, could only result in favour of an advance in cerebral organisation, such as that which has found a morphological expression in the skulls of the race of Les Eyzies. What became of this race so remarkable, which appears to us in that distant past like a bright light in the midst of darkness ? In cultivating the arts which adorn life and render it enjoyable, have such people lost the smallest quantity of that warlike energy which alone could protect them against the ferocious aggressions of surrounding savages ? And have they succumbed like those precursors who, having arrived untimely, disappeared, oppressed to death by the incompatible media into which they tried to introduce a premature progress ? or, indeed, surviving this inevitable struggle, in which their civilisation has perished, have they not escaped extermination only to fall back into universal barbarism ; and to lose, in the long run, under the influence of crossing, of social change, and of the gradual transformation of the fauna and the climate, the anatomical characters which formerly distinguished them ? It is permitted to hope that future discoveries will furnish new elements for the solution of these important questions ; but as yet we can assert one thing only —and that is, that the race of Les Eyzies is entirely different from any other race, ancient or modern, that we have ever seen or heard of.

ON THE PRIMITIVE FORM OF THE HUMAN SKULL.*

By Professor HERMANN SCHAAFFHAUSEN, Honorary Fellow of the Anthropological Society of London.

UNLESS man forms an exception to the great law of nature, which produces not merely a manifold and continuous alteration of the forms of life, by adapting them to new vital conditions, but shows in the plan of creation a progressive development from lower to higher forms, from the invertebrate to the vertebrate animal, from the fish to the amphibian, and from the latter to the bird or mammal, then the human form must equally have been developed in the scale of life from a lower organisation, like that which we find in the present creation in the animals standing next to us. This view is supported by the fact that the marks of a higher development, which distinguish man from the anthropoid apes, constitute by no means an immutable and fixed type, but exist in different degrees in various human races, and thus render the gradual development of these characters distinctly visible. Here the question presents itself, whether the oldest human remains of prehistoric times, which approach nearer the origin of our species, present the characters of a lower organisation. If this be so, this circumstance, combined with other observations, would form strong arguments in favour of the assumption of a natural origin of man. If such marks be not found, we are still permitted to assume that the oldest remains hitherto found do not reach so far back in time as to show an important deviation from the present organisation of man; not even from such a low organisation as we find at present in the lowest living savages.

But considering that human bones are only exceptionally dug out from graves of the pre-historic period, it is, at all events striking in the highest degree, that even this scant number of human fossils present such marks of an inferior organisation, and that, too, in regions now inhabited by the most civilised peoples. And we must also lay stress upon the point, that the proofs are in our hands; that the corporeal shape of the primitive form is, in some of its component parts, inferior to that of our rudest savages. The form of the forehead of the Neander-skull, the dentition and the form of the jaw of La Naulette, the prognathism of some infantile jaws of the stone period of Western

* A lecture delivered before the Archaic-Anthropological Congress of Paris, August 30, 1867.

Europe, exceed, as regards their animal form, that observed in living savages.

We may attempt the collation of such characters as have been observed in other parts of the human frame, in order to obtain, as it were, a sight of the perfect image of the primitive man. These characters must not be considered as accidental exceptions from the normal form, which was the common theory on meeting with such finds ; for these peculiarities in the organisation of the pre-historic man do not occur as exceptions, but as a rule ; and what is decisive is the circumstance that they mostly present a foetal character, and thus exhibit an early stage of development. They also frequently stand in reciprocal dependence ; one character determines the other according to the law of harmony or co-existence which governs the form of all living bodies. With the flying forehead we find, as a rule, a projecting jaw, large teeth, a high temporal line, a strongly developed occipital ridge, simple cranial sutures, small cranial capacity.

I confine myself here to collate, from a large number of very old and rudely-shaped crania, the most striking deviations from the normal form, and to compare them with the formation of the lowest races, in order to obtain an idea of the primitive form of the human skull, the whole of which we have not yet found among the ruins of the past, but which we shall surely find some day. It might not be difficult, by a similar method, to determine the original form of the other parts of the skeleton. We obtain this knowledge less by fossil finds than by the examination of the corporeal frame of living savages, who present the low state of their organisation not merely by the peculiarities of their cranial structure, but by a different proportion of the length of the bones of the extremities, by the elongated form of the thorax from in front backwards, by a slighter rotation of the humerus, the articular surface of which is more directed backwards, the perforation of the elbow fossa, the narrower pelvis with unusually vertical ossa illi, the backwardly projecting heel-bone, the larynx approaching the animal form, and by other characters.

Most of the skulls of the highest antiquity are distinguished by the thickness of the cranial bones ; this may partly be due to great muscular action, and partly to mode of life, which furnished an excess of phosphate of lime for the nourishment of the bones. The anthropoid apes have stronger cranial bones than are usually found in man ; and many savage peoples, like some Negro tribes, Esquimaux and Australians, have usually very thick and dense crania. This density of the osseous tissue seems to be wanting in the Mongol race. Herodotus already mentions the soft skulls of the Persians,* and the hardness of

* Lib. iii, cap. 12.

the Egyptian skulls, and ascribes it to the circumstance that the Egyptians walked about bareheaded and wore short hair. We, nevertheless, find not rarely Mongol skulls with thick bones, in which the diploë is largely developed, containing wide cells ; the bones are therefore thick, but neither dense nor heavy. Similar skulls, genuine brachycephali of the stone period, have been found near Uelde, in Westphalia ; they resemble, in their general forms, the crania of the reindeer period found in Belgium. Do they by this peculiarity betray their Asiatic origin ? It may be mentioned here that Blumenbach* calls a very dense, thick, and heavy Botocudo skull, the most orang-like skull of his whole collection, although some Ethiopian skulls had a more projecting upper jaw.

Smallness of the cranial cavity is a second character of the retarded development of the cranium. It may co-exist with an apparently favourable cranial diameter, because thick cranial bones, or projecting parietal protuberances, increase the width, and projection of the glabella, or of the occipital ridge, increase the length. The cast of the Engis- and still more of the Neander-skull, the casts of Negro and Australian skulls, show this peculiarity, as already pointed out by Gratiolet.

The long, narrow, nearly cylindrical form which is seen in most old skulls of Western and Northern Europe, and Northern Africa,—this decided dolichocephaly may, therefore, be held to be an imperfect and primitive form, because observations made during the growth of this skull have shown that its final increase in width is commensurate with the increase of the intelligence. The Mongol race, whose heads are broader than those of Europeans, present only an apparent exception to the law that the mental capacity is chiefly expressed in the breadth of the cranium ; for the greatest width of the brachycephalous Mongol skull lies between the parietal protuberances ; but the width in relation to mental capacity lies over the base of the cranium. The finds of several old skulls in Scandinavia and Western Europe may have led to the view that the oldest race of these countries was brachycephalic, like the present Lapps, who, like this tribe, lived associated with the reindeer, and spread over Southern Europe. But the Neander- and Engis-skulls, which must be considered as old, if not older, than the reindeer-men, are long skulls. In England also, from finds in the graves, it is considered that the dolichocephalic race is older than the brachycephalic. Although the succession of peoples of a different type and of different descent, in Europe, is still involved in doubt, yet certain it is, that as regards the anatomical characters, the dolichocephalic type of these old skulls stands lower than the brachy-

* Decas, vi. *Coll. sua Cranior. div. gent. ill.* Goett., 1820, p. lviii.

cephalic, and must be held to be the original. But it is possible that it may have immigrated at a later period. As it often has happened in history, so may in these remote periods a ruder but physically stronger race have overcome a weaker nomadic people, and gradually occupied their dwelling-places.

There is a whole series of facts which proves that a very pronounced dolichocephaly is a primary and less developed form of the human skull. We see it decrease with the progress of civilisation, as Broca found in the population of France. The same observation has been made in Germany, where the old Germans, at the period of their wars with the Romans, were dolichocephalic, and differed so little in cranial structure from the Celtic or Gallic type, that we must assume the near affinity of these tribes. But at the present day most Germans, as shown by the observations of Welcker, are brachycephali or mesocephali, the latter standing intermediate between the long and short skulls. Ecker* arrived at the same result when comparing the old Alemanni with their descendants, the present Suabians, whose skulls have diminished in length but become broader. I, myself,† have shown that the human skull, during its growth, continues longest to extend in breadth, whence it follows that the breadth diameter of the cranium corresponds most with the intellectual development of the brain. This connection is also shown by the following observation. On comparing the brain of a rude Negro or Australian with that of the civilised European, or with that of a highly intellectual man, it strikes us at once that these brains differ much less in their length than in their breadth. The assertion seems, therefore, well founded, that the elongated, narrow, and, at times, almost cylindrical form of the human cranium, is the rude and primary one, which gradually disappears in proportion as the brain, by its development, increases in size, and, mostly, in breadth. These primitive dolichocephalic skulls have a narrow, low, and receding forehead, the region of the sagittal suture, and often the frontal suture, is somewhat projecting, which imparts to the vertex a boat-shaped form; the temporal squama is low, but elongated from behind forwards, so that it sometimes reaches the frontal bone by intruding between the parietal bone and the great wing of the sphenoid bone, as seen frequently in the Negro, and which also occurs in the Australian, the Mongol, and the old Peruvian. This connection of the temporal squama to the frontal bone is observed in the anthropoid apes, the chimpanzee and gorilla; more rarely in the ourang-outang, but is by no means absent,‡ as asserted by Cuvier and

* *Crania Germaniaæ Merid.-Occid.* Freib., i b, 1865, p. 82.

† *Amtl. Bericht über die 40. Vers. deutscher Naturf. u. Aerzte zu Hannover im Sept. 1865*, p. 242.

‡ R. Owen. *On the Osteol. of the Chimp. and Orang.*, p. 357; and C. B. Brahili, *Zur Kenntniss des Orangkopfes und der Orangaten.* Wien, 1856, p. 11.

M. J. Weber. The condition of the temporal squama shows very plainly the share which the separate cranial bones have in the total form of the cranium, or rather how they determine it. If the cranium be high and spacious, the temporal squama reaches high up, and its upper margin is circular; if the cranium be flat, or long and narrow, then the squama is elongated from in front backwards, and its upper margin is almost straight. It is thus found in the anthropoid apes, the Negro and the Australian, in the Neander-skull, and in the strongly dolichocephalic skulls of the old Germanic graves. That the orang possesses more rarely than the other large apes a temporal squama reaching the frontal bone, arises no doubt from the more brachycephalic form of his skull. On comparing with the human skull that of a mammal—of a dog, for instance—it is observed that the bones of the cranium take an unequal share in the diminution of the cranial capacity. The frontal bone is comparatively little altered in length; its upper point intrudes in many mammals even between the parietal bones, but it is flat and narrow. Perceptibly shortened is the sagittal suture of the parietal bones, but the latter remain the most curved and largest bones of the cranium. The temporal squama is low, and its upper margin runs straight. The occipital squama, which is showed in the shape of a narrow osseous ridge between the parietal bones, is most shortened. The skull of the great apes shows almost the same deviations from that of the human form.

The characters observed in the skulls of the lower races, namely, a narrow and low frontal bone, a short sagittal suture, a low temporal squama, a short occipital squama, the upper margin of which forms a flat arch, are therefore to be considered as approximations to the animal form, and they stand to each other in organic connection. If the occipital squama projects like a ball, a peculiarity frequently seen in Celtic and old Germanic skulls, it is also a mark of arrested development, and, like the great projection of the parietal protuberances, is a stoppage at the infantile form. Welcker* has shown that during the growth of the skull, the bones flatten and thus increase the cranial capacity, and he ascribes justly the arching of the bones to the pressure of the growing brain. We not rarely find in skulls of a rude form that the sides of the cranium under the parietal protuberances down to the temporal region form almost an even plain; this also is an infantile form, to which Meckel already drew attention by observing that in the infantile skull from the projecting ossification points, the upper and the lower portions of the bones almost form a right angle. We rarely find in crania of a rude form the parietal protuberances

* *Untersuchungen ueber Wachsthum und Bau des Menschl.-Schädel's.* Leipzig, 1862.

obliterated, they are in most cases projecting as in the new born and in the female skull, the latter preserving also in other respects infantile characters. In such cases the greatest cranial breadth lies between the parietal protuberances ; thus it is with the crania of Australians and other rude skulls of primitive times, e.g. the Engis skull, hence a large interparietal breadth is no proof of a good cerebral development, it is, on the contrary, a mark of arrested development. The Malay-skull with its rounded form has its greatest breadth between the parietal protuberances, but becomes narrower at the base, and is by this, as well as other characters, recognised as a rude form of the brachycephalic type. Already in the year 1828 Mayer[†] wrote that the Malay-skull resembles in form the type of the Orang skulls. At a later period, he describes[‡] in the skull of a Malay woman a sinus pterygoideus and a sinus jugalis, as a species of animal form, and he also designates the peculiar depression of the nose and the stunted nasal bones, as seen in the low Malay skulls, as well as the projections of the jaws as similar characters. He once found in a Malay-skull of Nukahiva, the nasal bones completely absent ; in a second skull the stunted nasal bones were so intergrown with the upper jaw, that they seemed to be absent. He also remarks that this stunting of the nasal bones as well as the high and broad occiput, are not usually seen in the negro. Stunted nasal bones occur also occasionally in the Negro. Leuckart[‡] describes two such Negro skulls of Blumenbach's collection. Among the Hottentots we find equally that the nasal bones frequently coalesce in a little squama. Leuckart mentions, however, that the form of the nasal bones of a Japanese skull resembled that of the orang outang ; this applies also to a Kaffir skull of Vrolik's collection in Amsterdam. Soemmering[§] also found that a Marquesa skull of the island of Nukahiva resembled much that of an ape.

It may be easily conceived that if, in addition to the usual form of the Malay skull, there is a morbid arrest of cerebral activity, it must give rise to a human cranial form which strikingly betrays the animal type. This is the case with the skull of a Malay female idiot which was shown to me in 1867 by Halbertsma, of Leyden, and which he subsequently described.^{||} But in this case the cranial capacity was not greatly limited ; it was not such an arrest of cerebral development as seen in microcephali. Halbertsma found in eight female

* V. Meckel. *Neues Archiv für Physiologie*, 1828, p. 437.

† *Organ für die gesammte Heilkunde*. Bonn, i, 1841, p. 114.

‡ D'Alton und Burmeister. *Zeitung für Zoologie u. s. w.*, i, 1848, p. 57.

§ Catalog. Mus. Anat. qu. Coll. S. Th. Soemmering. Francof., 1830; and *Neue Denkschrift der Societät zu Erlangen*, i, 2.

|| Halbertsma. *Beschrijving van een Oost-Indischen Idiotenschedel*, Nederl. Tijdschr. v. Genezek. Jaarg., 1864.

Malay skulls the mean capacity to be 1306. c. cm., that of the idiot amounted to 1265, whilst that of the orang was only 340 c. cm. But the imperfect development showed itself in the narrowness and length of the cranium, in the strong prognathism, in the size of the facial portion, in the elliptic dental arch of the upper jaw, the short occipital squama, the high-reaching attachment surface of the temporal muscle, and the but slightly curved sutures. Halbertsma concludes his description with the remark, that this skull shows how much the human form may lapse into the animal type, and that this derivation is not expressed in a single part but in the whole structure of the skull. The peculiarities which this skull possesses in excess, occur commonly in a less degree in other Malay-skulls, proving that there is also a lower form of the brachycephalic skull. The general outline of both is different; they are apparently sprung from a different root, but both express an arrested development or a low organisation. On taking this view of the Malay-skull, it appears improper to look upon it as a mixed and not as a racial form. The Malay has more claim to the denomination of race than the American or Caucasian. Setting aside the changes the human skull undergoes by culture, there remain two rude types—the dolichocephalic and the brachycephalic skull. We possess no facts for their common origin; but that they are of different descent may be deduced from the circumstance that those regions of the globe in which the above types are strongly represented, namely, equatorial Africa and South Asia, are also the homes of two species of anthropoid apes, who differ similarly in cranial structure.

Even when from this fact no conclusion is drawn as to the origin of man, the analogy of the formation still holds good, and some may attempt to explain it by climatic causes. Duvernoy was the first who opposed the dolichocephalic Chimpanzee to the brachycephalic Orang. Agassiz has pointed out that in Asia and Africa the large apes and the human races have the same colour of the skin. I myself have drawn attention to the fact* that the gorilla is also dolichocephalic, and that the approximation of two human races to the apes of the same countries in colour and cranial form appears the most formidable objection to the unity of the human species in the present state of our knowledge. The casts of ape and race skulls, *i.e.*, the cerebral forms shew that typical conformity more distinctly than the skulls themselves, whose projecting crests and frontal ridges in the apes do not clearly delineate the outlines of the cranium. In conformity with these remarks, M. L. Bischoff† calls the orang-outang

* *Verhandlungen des Naturhist. Vereins.* Bonn, 1864.

† *Über die Verschiedenheit in der Schädelbildung des Gorilla, Chimpanse und Orang-Outang.* München, 1867, p. 71.

brachycephalic, the gorilla and chimpanzee dolichocephalic and adds that these differences shew themselves already in very young animals. Virey even pointed out a psychical resemblance of the Negro to the wild African ape, and of the Asiatic to the gentle and docile orang outang. But there is no doubt the chimpanzee is also docile and gentle. If by races we understand, as was the original meaning of the term, roots of human stocks, there remain, of the hitherto distinguished racial forms, of which Buffon adopted six, Blumenbach by the fusion of the Lapps and Tatars, five ; Rudolphi, by giving up the Malay race, four, and Cuvier, by the rejection of the American, three ; there remain only two well-founded races, an Asiatic and an African, and the future will decide whether really the oldest European stocks, differing in cranial structure, have immigrated from Asia or Africa. The Austral negro, whose existence seems to militate against such a view, betrays by the height of his skull and his projecting parietal protuberances, an affinity to the Malay. It may also here be mentioned, that the oldest human civilisation had two regions of issue, India and Egypt, and that historical research has left the privilege of their respective antiquity undecided. Even the sharp-sighted Blumenbach* already maintained that all cranial forms may be arranged between the two extremes, namely, the Ethiopian and the Mongolian form.

Stature and muscular force have some influence on dolichocephaly or brachycephaly, and it is worth examining how far it extends by the side of hereditary differences. The dolichocephalic skulls of the present Scandinavians, Germans, and Celts of the past we find combined with high stature.† The little, round, brachycephalic crania of remote northern antiquity, described by Nilsson and Eschricht, designate, like the human remains of the reindeer period found in Western and Southern Europe, a short race. Malays and Mongols are usually of shorter stature than North-Europeans and Negroes. Welcker found that short men incline more to brachycephaly, tall men to dolichocephaly. Thus we find also the gorilla superior in height and strength to the orang-outang. There is no doubt that the muscles, as shown by the researches of Fick, exercise a hitherto unnoticed influence on the form of the bones in general and upon some cranial bones. The strongest of these muscles, the temporal muscles, which compress the cranium on both sides the muscles of the neck, which act on the occipital as well as the frontal and corrugator muscles, which project the soft parts of the frontal region ; all these act upon the elongation of the cranium.

* *Decas v. Coll. suec Cranior. div. gent. ill.* Goetting., 1808.

† Compare Schaffhausen, *Ueber Germanische Grabstätten am Rhein*, in den Jahr. de Vereins v. Altherthumsf., xliv, 1868, p. 109.

We find that when muscular force predominates in whole tribes, it is generally concomitant with a lesser degree of mental development; we thus find that the influence, which favours the increase of the skull in breadth is wanting. To assume that there is in the bones themselves a formative principle, we have no ground whatever. There exist startling examples of the influence of the muscles and the soft parts upon the shape of the bones. Blumenbach describes a skull, the facial bones were quite contracted by long continued spasms on one side. Another remarkable case is cited by Busch,* in which, in consequence of the contraction of the cicatrix after a severe burn, the bones of the left side of the face had become atrophied; the left half of the tongue also diminished in size. That the tongue corresponds to the space of the jaws is shown by the large tongue of the lower prognathous races. Virchow remarks that the position of the upper jaw is also determined by the tongue, he refers to the cretins and to a case of macroglossy.† Zillmer‡ also shows that in cretinism the projection of the teeth is caused by the pressure of the tongue. The view of Retzius that dolichocephaly is produced by a great development of the occipital lobes, which is a privilege of human structure, and therefore represents a higher human form, is opposed to the occurrence of this cranial type, nor does it comport with the law of the development of the human brain. It is not the length of the occipital lobes, but their increasing breadth and height, which chiefly condition their stronger development in man. The old opinion that in man only, but not in the ape, the posterior lobes of the cerebrum cover the cerebellum has been proved to be erroneous.§

The following remark of Welcker: "As the ruder tribes of the Bashkirs and Calmucks are held to be the prototypes of brachycephaly, and as the narrow shape is considered to be the nobler form, so that every one speaks of the dolichocephaly of the Germans, it seems an affair of honour to save the dolichocephaly of the German skull," refers merely to a general prejudice, which the researches of Welcker himself have greatly removed. Aeby|| also arrived by his measurements at the conclusion that the most important character of the skull is not its length but its breadth; and he divides, therefore, the crania into stenocephali from 130-148, and eurycephali from 159-168 mm. in breadth.

* *Sitzungsberichte der Niederrh. Geselsch. in d. Verhand. des Naturhist. Ver. Bonn*, 1865.

† *Virchow, Archiv*, vii, p. 133.

‡ *Ueber Idiotie*, Jena, 1860, p. 197.

§ *Bericht über die Zusammenkunft einiger Anthropologen in Goettingen*. Leipzig, 1861, p. 33.

|| *Die Schaedelformen des Menschen und der Asten*. Leipzig, 1867.

The sutures constitute an important character for the determination of the development of the skull. They are straighter, almost lineal, in the new-born, and but little dentated during early infancy. In many crania of savages we find them in the same condition as they exist in infants from two to six years old. Even the usually long dentations of the lambdoid suture are short. It is, therefore, not surprising that we find the same low form in the prehistoric man. The cranium of the Neandervalley betrays also in this respect its high antiquity and primitive form.

The ramification of the dentations indicates a slower and longer growth of the cranium and the brain, and corresponds with a higher mental development. It may also arise from the arrest of osseous development; for instance, from the deficiency of bone-forming lime, as is frequently seen in rickety heads and the soft skulls of the Mongol race, in which the spongy substance predominates. In such cases intercalated bones are often met with in the sutures. Lucae* found the quantity of ashes of a skull with distinct dentated sutures to be less than that of a skull with obliterated sutures. In all crania the quantity of ash of the external table is larger than that of the spongy substance. Virchow† asserted that in rapid growth of the bones the sutures become dentated and Wormian bones arise; but this view is in contradiction with all other observations, and if in rickety subjects the sutures remain rectilinear, it is not the consequence of a slow but of an obstructed growth of the bones. Although Lucae does not agree with Virchow that the Wormian bones diminish the cranial capacity, he agrees with him in so far that the dentated sutures indicate a rapid growth of the margins of the sutures, whilst they should be considered only as the consequence of the progressive growth of the margins with a diminished ossification. The continuous pressure of the growing brain must, in many cases, be the cause of the sutures remaining open. Their early closure may be due either to an early cerebral development, or may be the result of an inflammatory process, in which case cerebral development is obstructed. We cannot, therefore, admit as a general rule the assertion of Serres that premature closure of the sutures obstructs mental development; for this early closure is frequently only the consequence of a deficient cerebral development. In rachitis, the softening of the bones, which produces curvatures, is usually followed by a thickening of the osseous tissues, and an inflammation of the periosteum seems to attend both processes. Stahl* found that straight finely-indented sutures are con-

* *Zur Architektur des Menschenschädels.* Frankf., 1857.

† *Gesammelte Abhandlungen.* Frank., 1856.

‡ *Klinische Studien.* All. Zeitschr. f. Psychiatrie, 1854.

comitant with little cranial capacity, and that sutures with bevelled margins and dentated processes are conjoined with a larger cranial capacity. Compared with animals, man has the slowest ossification of the cranium and the greatest dentated sutures. The straight linear sutures are so much a mark of a senile synostosis, that some cranial sutures, like the frontal and sagittal, close first at those spots where they run straight. Welcker points out that the frontal suture closes first at the poorly dentated spot between the frontal eminence, which also applies to the suture between the occiput and the mastoid process. The depression of the posterior third of the sagittal suture, where it runs straightest, shows clearly an early closure at that spot. Lucae, therefore, justly supposes that senile obliteration commences first at the inner surface of the cranium, because the borders of the bones are joined there in a straight direction. From what has been stated, we arrive at the conclusion that early ossification and straight running sutures in healthy skulls are marks of inferior development. It did not escape the attention of Welcker that in animals and savages the sutures close early. Gratiolet* says also that the cranial sutures are more slowly closing in civilised peoples; but when he adds that their remaining longer open is the cause of their larger brain, we hold that the reverse is the case. He also points out that the closure of the sutures in the negro and the idiot commences in front, but in civilised peoples at the back. This observation is only half true. The early closure of the frontal suture indicates in most crania that the breadth growth of the forebrain by the elevation of the frontal bones, and the yielding of the coronal sutures, is sufficiently secured. The firm connection of the frontal bones to the root of the nose is probably the cause of the early closure of their suture.

The long continued breadth growth of the skull in its posterior and inferior parts, which may be observed in the heads of gifted men, necessarily conditions a later closure of the corresponding sutures. An early closure of the sutures at the occiput is only seen at the posterior part of the sagittal suture, and this may be connected with the slight increase of the subjacent cerebral convolutions. Welcker asserts that in an infant nine months old and in the adult the distance of the frontal eminences is the same, about 58 mm. in the average, which is doubted by Virchow and Lucae. Soemmering who had a Negro skull with a frontal suture, and latterly Humphry asserted that the frontal suture occurs both in broad and narrow foreheads. Welcker has, however, shown that it is found more frequently in brachycephalic peoples than in dolichocephalic, which might have been anticipated. In the burial place of Uelde of the stone period of

* *Comptes rendus*, 26 Août, 1856; and *Bullet. de la Soc. d'Anthrop.*, 1860.

Westphalia were found many crania with frontal sutures, which may be explained by the brachycephalic type and the predominance of the diploë. Engel* connects the open frontal suture with softness of the bone, hence in crania with a frontal suture all the sutures are frequently found open, as also pointed out by Welcker. That the short or long cranial form is connected with the early closure of the transverse or longitudinal sutures, and that the obliquity of the skull is in many, not in all, cases produced by the closure of a suture on one side only, are well known craniological facts. There are also numerous facts showing that in savage peoples the sutures are more simple. In the skull of a Negro, brought by Prince Max von Wied from Brazil, all the sutures are still open and strikingly simple; even the lambdoid suture is but little serpentine in its course.

The same condition presented a Peruvian skull, not artificially compressed, which Bibra brought from Algoa-Bay, also the cranium of Nieder-Ingelheim from a grave of the stone age, the Neander skull and partly also the Engis skull. Very simple, straight sutures are also seen in an Esquimaux, a Papua skull, and the old Batavia skull of Blumenbach's collection in Goettingen. The skulls of the New Caledonian, brought home by Bourgarel, now in the collection of the Garden of Plants of Paris; most of the African skulls† brought by Bilharz from Cairo, as well as the Negro skulls described by Barkow.‡ It were desirable that in future delineations of crania the sutures should be carefully attended to, which has hitherto been neglected and left to the fancy of the drawer. Broca has arranged that in the catalogue of the collection of the crania of the Paris Anthropological Society the development of the sutures should be mentioned. That the early closure of the sutures coincides with an inferior organisation is supported by many facts. Engel already pointed out that the idiot skull frequently showed premature synostosis of all the sutures. How much the formation of the bones differs in idiots is shown by the cretin skull cited by Hyrtl,§ in which there were 323 suture bones. According to Hyrtl, the suture bones arise when the ossification at the border does not proceed *pari passu* with the growth of the bone, and when the intermediate substance becomes ossified later, as is the case in hydrocephalus. Prichard remarked that in many Negro skulls all the sutures close early. Pruner-Bey|| also mentions this fact. J. Wallace found in four Negro skulls of a tribe of the west coast of Africa, who stand low in mental development, that the sagittal suture

* *Untersuchungen ueber Schaedelformen.* Prag., 1851.

† A. Ecker. *Schaedel Nordostafrikan. Völker.* Frankfort, 1866.

‡ *Comparative Morphologie,* 3 Bd. Breslau, 1865.

§ *Handbuch der Topogr. Anatomie.* Wién, 1853, p. 10.

|| *Mémoires de la Soc. d'Anthrop.* Paris, 1861.

left no trace. I saw in the possession of Van Beneden, of Louvain, in 1866, a small, oval, very thick, brown coloured skull from the peat of Blasfeld, near Antwerpen, in which the sutures were externally ossified, but internally quite obliterated ; the straight but narrow forehead showed prominence in the direction of the frontal suture, of which a few dentations were still visible in the upper half ; the whole sagittal suture was projecting, the vertex was roof-shaped, the plane of the temporal muscle was, in the whole, raised a few millimetres above the cranial surface. In this case there must have been a strong muscular pressure upon the skull. That this pressure is one of the causes of the early coalescence of the sutures may be proved by the fact that an artificial pressure upon the skull will produce the same effect. D'Orbigny says that the Aymará skulls presented closed sutures at all the spots which had been compressed ; even the skulls of young persons showed this condition. Welcker found in a Huanca skull a portion of the coronal suture obliterated. Such is also the case with the macrocephalic skull brought by Prince E. Wittgenstein from the Crimea, which is now at Wiesbaden. On the other hand, in the compressed skulls from a grave near Niederholm, described by Ecker,* all the sutures are open, but little dentated. The heart-shaped Mexican skulls of the Paris Museum are in the same condition. The early-closing animal skull is more covered by muscles than the human skull. Finally, it is not surprising that the skulls of the fossil dog or wolf, as I have observed in the cave bones of Westphalia, have straighter sutures than the domestic dog.

The most palpable mark of an inferior organisation is the projection of the jaws and the teeth, which is the rule in many savage races, and is usually coincident with arrested cerebral development. It occurs in all races, but only exceptionally in the Caucasian. Camper's facial angle shows this condition. Blumenbach found it in the square head of a Sarmatian and in the narrow skull of a Congo negro. In the highest degree of prognathism the teeth are in the direction of the jaw. In the Malay, the anterior surface of the upper jaw under the nasal aperture is often distinctly concave, and the teeth of the upper jaw then project above those of the lower ; in the Negro the above surface is convex.

Pruner-Bey calls double prognathism that rare occurrence, when the incisors of the lower jaw are also projected forwards, and thus form with those of the upper jaw an acute angle. Cranial fragments from the stone age show marks indicative of a prognathism which exceeds that of living savages. It is unquestionable that in the apes prognathism increases with the growth of the skull, and this is pro-

* *Archiv für Anthropologie*, i. Braunschweig, 1866.

bably the case with the lower races. Pruner-Bey found it slight in an infantile Negro-skull. I found the same in a Negro-skull of the first dentition in the Paris collection. It is, therefore, important to notice that in several infantile skulls of remote antiquity a very considerable prognathism has been observed. Pruner* first drew attention to this; that it was the skull of an idiot cannot be urged. I found the same conformation in some fragments of infantile skulls found at Uelde. It also struck me that we so frequently find in ancient female skulls so decided a prognathism that they almost resemble the Ethiopian skulls, and have been mistaken for it. The most prognathous skull in the cave of Frontal† is that of a female. This may be simply explained from the fact that the female skull retains in its growth more signs of imperfect development than the male, namely, the projection of the parietal protuberances, the lesser elevation of the frontal bone, the shorter and narrower cranial base, and with the latter is connected the more elliptical dental arch and the inclination to prognathism. When the characters of a race type were not viewed as a whole, and when the degree of the development of a skull was not yet distinguished from its type, then striking individual features were held as determining the racial form, and it was believed that these features occurred also in other races, although only exceptionally. Thus prognathism in a European skull was said to be an Ethiopian character. Blumenbach already said that the Negro is distinguished from the European as is the wild boar from the domestic swine. M. J. Weber‡ tried to show the occurrence of all race forms in the skulls of the inhabitants of the Rhenish provinces; but it is only because individual cranial bones may in all races present similar conditions of development, that such similarities of individual character which never represent a whole race type may occur. Among the negroid skulls which Weber found in the collection at Bonn, three are female skulls.

In the skull of a Jewish girl, delineated Tab. xvi of a work cited below, the forehead is wider, the sutures more dentated, the zygomatic bones less projecting than in the Negro, and the nose is, by a crista, separated from the surface of the upper jaw. In a female skull of the anatomical collection of Goettingen, the negroid type is limited to the projecting jaw; the round cranial form, the broad forehead with distinct frontal eminences, the broad wing of the sphenoid, the finely indented sutures, do not by any means correspond with the Ethiopian

* *Anthrop. Rev., London*, No. 16, p. 126.

† Van Beneden and Dupont. *Bullet. de l'Acad. Roy. de Belgique*, xix, No. 1.

‡ *Die Lehre von den Ur- und Rassen-formen der Schädel und Becken des Menschen*. Düsseldorf., 1830.

cranial form. Vrolik* also cites the skull of a girl nineteen years old which, by its prognathism, length of palate, and receding forehead, resembles that of a young negress ; but whilst the form of the jaws reminds us of the orang, the nasal bones present a sharp ridge, and the sides of the cranium are arched. The lower jaw of La Naulette presents a decided animal prognathism, as the chin, so prominent a feature of human expression, is wanting. The jaw here takes part in the prognathism, and forms behind the incisors an obliquely directed surface. This striking simian form had, until then, not been observed. The fossil jaw of Arcy possesses it in a less degree ; I also find it in the fragment of an old lower jaw of Fritzlar,† in the jaw of a young person found at Uelde, in which the canine tooth projects above the first molar nearly four mm., and in the lower jaw of Grenenbrück,‡ which also, in the elliptical form of the dental arch, betrays a low organisation. The jaw of La Naulette possesses another animal character, namely, the size of the molars ; the last of which is the largest, with five roots, as in the anthropoid apes, with exception of the chimpanzee. Owen§ has pointed out that in the Caucasian race the two external roots of the last molar were usually grown together, and that sometimes the internal is united with them ; which is never the case with the Melasian races. In Australians the wisdom tooth has always three distinct roots, as in the chimpanzee and the orang. In civilised races the posterior dental portion of the jaw is always shortened ; that this is not the case in savage races, is shown by the fact that we find in them occasionally six instead of five molars. Soemmerring found the latter five times in Ethiopian skulls ; and we find also in the orang sometimes a supernumerary molar. It is frequently observed in the Negro, the Australian, and the Malay, that the true Molars are equal in size. The narrower base of the primitive skull, and the projection of its jaws, cause the dental arch to be more elliptical, whilst in the higher-formed human skull it is paraboloid. Among savages we find that the lower Negroes, the Australians, and especially the Malays, present this elongated form of the dental arch, so that the molars stand almost in straight lines and parallel to each other. In the collections of Utrecht and Leyden, so rich in Malay skulls, I noticed this form. The resemblance to the ape jaw becomes still greater when the dental arch is nearly rectangular, and when also the incisors form a straight line. I have thus seen it in Negroes

* *Musée Vrolik, Catalogue, etc.* Amsterdam, 1865, p. 64.

† E. Müller. *Über einige Menschliche Überreste aus der Steinperiode.* Marburg, 1864.

‡ *Sitzungsber d. Niederrhein. Gesell in den Verh d. Naturhis. ver.* Bonn, 1864, p. 30.

§ *Odontography.* London, 1840-50.

and Australians; also in the lower jaw of a skull from Madura, in the Goettingen collection. In the child, as Welcker has shown, the distance of the last molars on both sides is less than at a later period, although the length of the dental arch does not increase after the second dentation. The fossil lower jaw of Grevenbrück possesses this character, and other signs of primitive form, in which it resembles that of a child, namely, the scant height of the horizontal portion, and the short articular process, forming an obtuse angle. Owen declares it a peculiarity of man that the pre-molars of the upper jaw have never three different fangs, as is the case with apes. Such a form had hitherto never been observed in lower races. I am the first who found this character pertaining to the remote antiquity of our species, in a skull of the bronze period* found at Olmütz; the second pre-molar of the upper jaw has here three very distinct roots. I found the same in two skulls of the common shape in the anatomical collection of Goettingen; in No. 1297, the first upper left premolar, and in No. 1354, the same tooth on the right, have three roots. Premolars with two separated fangs are not rarely met with in the lower races. The interval also (*diastema*) between the canine and the incisor, so well marked in the apes, is also met with even in man. A Kaffir skull in the collection of Erlangen, delineated by R. Wagner,† shows this plainly.

The nasal bones of the primitive skull we must assume to be small, as we find them so in the lowest races. In the latter, the floor of the nasal cavity passes, with a smooth plane, into the anterior wall of the upper jaw. The same form presents an old Germanic skull from Nieder-Ingelheim, and a skull from the so-called giant grave, which Dr. Wentzel, of Bergen, kindly presented me with.

That the rude skulls of antiquity show the effect of strong muscular action is easily conceived, when we consider that the first inhabitants of Europe had to sustain a great struggle with the animal world. Deep zygomatic fossæ, strongly projecting superciliary ridges, a high and projecting temporal line, a greatly developed occipital spine, are more or less combined. In a skull found near Lippstadt,‡ of the stone period, the semicircular line of the occiput runs in the shape of a sharp osseous ridge from one mastoid process to the other. Eschricht§ delineated a skull from a Danish barrow in the island Fyör, which has on the occiput a projecting osseous spine; the temporal squama reaches the frontal bone. I, myself, possess a Germanic

* *Sitzungsber. d. Niederrh. Gesellsch. Verh. d. Naturhist. ver.* Bonn, 1865.

† *Icones, Zootom.* Leipz., 1841, Tab. II, fig. xv.

‡ *Sitzungsber. d. Niederrhein. Gesell. in Verh. d. Naturhist. ver.* Bonn, 1859, p. 103.

§ *Amtl. Bericht der 22 Vers. deutsch. Naturf. u. Aerzte in Bremen*, 1844, p. 92.

skull of the rudest shape, found in Cologne, which is very long, narrow, thick, and prognathous ; the temporal squama reaches the frontal bone, the sutures are simple, the temporal line strongly developed, a superior premolar has two divergent fangs, the occipital lines coalesce in the centre in a strongly projecting squama. A strong occipital crest is frequently accompanied with a weakly developed mastoid process, which is nearly wanting in the ape. If the skull is well fixed to the neck, it is less moveable on the vertebral column ; the powerful mastoid processes of the human skull are, therefore, the result of the erect posture, with which many peculiarities of the human form are connected. The occipital foramen lying further back, the simple convex curve of the vertebral column, the walk with a projecting body of the Negro and other savage races, prove that the more noble human form is quite erect, by which a more free rotation of the head upon the vertebral column is acquired. Ecker has justly enumerated among the characters of the male skull, the large and strong mastoid processes, which correspond with the greater muscular force of the male. When B. Davis* cites, against this view, the small and little prominent mastoid processes of an Akassa Negro of the west coast of Africa, it may be explained by a strong posterior attachment of the skull to the vertebral column. I have several times seen small mastoid processes in rudely-shaped ancient skulls.

In this way we may, by the combination of individual fragments, found in Western Europe, obtain an idea of the primitive human skull. That the primitive man had a similar form in other regions, may be inferred from the fact that the lower races in different countries possess corresponding marks of a low organisation. But such a great resemblance of the oldest fossil skulls, affording a proof of a common origin, has hitherto not been found in our part of the world. There remains, as for the living races, two forms which cannot be united, namely, a brachycephalic, which is now mostly predominant among the peoples of Northern and Southern Asia, and a dolichocephalic type, prevalent in Europe and Africa.

It is not surprising that in the region intermediate between Europe and Asia, namely Russia, both types should prevail. According to the researches of Dr. Copernicki, of Bucharest, the great Russian in the north-east of the empire is dolichocephalic, inclining to a roof-shaped vertex, he is of high stature, fair or red haired. The little Russian, or Ruthene, is short and brachycephalic, his hair is chestnut, and he speaks a different dialect. Despite this difference in the fundamental form, the law of the development of the human skull is universally valid. The skull of savages possesses characters which are the same

* *Archiv für Anthropologie*, II. Braunschweig, 1867.

everywhere. There exists an unquestionable similarity of form between the skull of the old Briton and that of the present Australian. A scant breadth of the base of the skull is, in the Negro and the Malay as in the pre-historic man of Europe, the mark of an imperfect cerebral development ; the features, which resemble each other in all low races, are such as correspond with a scant development of the mental powers, the improvement of which has in all countries the same influence upon the improvement of the cranial form. There are two influences forming the characters of human races—climate and civilisation ; upon climate depend stature, general physical conformation, colour of skin and hair ; but it is civilisation which develops the brain, gives height and breadth to the skull, and diminishes the frame of the jaws. Indirectly civilisation acts upon all race characters, because it can limit and change the influences of the climate. On the other hand, climate often facilitates or impedes civilisation. It may further be asserted that whilst a manifoldness of type is caused by the difference of climatic conditions, mental culture may be a means for the approximation and equalisation of forms. It is not surprising that we find the extreme forms among savage peoples, and that the past presents to us forms more widely differing than the present. It is unquestionable that the anthropoid apes of Africa and Asia, which live under similar climatic influences, do not differ from each other in cranial form as much as human races of different parts of the globe. Their wider geographical distribution exposes them to greater changes of natural influences, and the different degrees of their civilisation produce other divergencies. But there exists a decided dolichocephalic and brachycephalic type in the cerebral form of these apes. I find the cast of the cranium of a chimpanzee one hundred and nineteen mm. long, and ninety-two in width, that of the orang one hundred and nine mm. long and ninety in width, that of a young orang one hundred and five mm. long and ninety-four wide. The differences are greater in adult animals, and are greater in length than in breadth. The type of the Negro and that of the Mongol are already recognisable in early infancy, as already observed by Blumenbach.* We cannot agree with Pruner-Bey and Aeby that race differences are not observed in the infantile skull, they only become more prominent at a later period. When we adhere to the designation of race skulls, as proposed by Retzius, namely, of the brachycephalic and dolichocephalic form, it must at least be allowed that the indication of the greatest length and the greatest breadth of a skull does not decisively characterise it. Two skulls may agree in these measures and yet differ in shape, descent, and the degree of their development. On the other hand,

* *Decas III, Coll., etc., No. 29 and 30.*

the length and breadth of a skull is a palpable mark of distinction, and herein consists its value. To this may be added that the widely differing cranial types, that of the Mongol and Negro, also differ in this respect, although the skull of the Negro can only be called long in proportion to its scant breadth. R. Owen* has pointed out that the dolichocephalic type of the African skull does not consist so much in its greater length as in its scant width and height, and that the length of the hemispheres is much more constant than their breadth and depth. Aeby, therefore does not distinguish skulls into long and short, but into narrow and broad. This denomination labours under the disadvantage that the greatest breadth of a skull occurs in different spots, and has therefore a different signification.

Every classification which relates to individual cranial measurements is defective, and the greatest confusion may arise if there be no agreement in the method of mensuration, as is unfortunately the case in measuring the breadth of crania. Sometimes the width is measured between the parietal eminences, sometimes over the auditory apertures or some other spot. The same skull may thus, when differently measured, be either dolichocephalic or brachycephalic, as is the case with a Malay skull of Macassar now in my possession. This skull is 169 mm. long, and measured over the auditory aperture 114 mm., but between the parietal eminences it is 131 mm. wide. As, according to Blumenbach, all different race types are connected by intermediate forms, it became necessary to adopt a medium measure between the long and the short skulls. Von Bär recommended a width amounting to 80 p.c., Welcker, 75 p.c. of the length. But when we speak of a dolichocephalic or brachycephalic type, we ought to attend not merely to the proportion of breadth to length, but to other characters usually combined with it. Halbertsma found in normal Malay female skulls, length 164 mm., breadth 135, cranial index 83. In the idiot cited above, the length is 173, breadth 130, cranial index 75, and that of an orang 74. Still the idiot has, despite her cranium being called long and narrow, not lost the Malay type. The high vertex, the high situated parietal eminences, the erect occipital squama are all preserved, and as the section of the cranium shows the cranial cavity is brachycephalic, the greater length is produced by a thickening of the cranial bones in the direction of the length diameter. The most minute measurements hitherto applied give no correct image of the skull, when we neglect the form and quality of every separate bone. Owing to the zeal of fixing the differences of cranial forms by systematic measurements, we have omitted to attend to the other characters, which may give us some clue to the degree of the develop-

* Du Chaillu. *A Journey to Ashango-land.* London, 1867, p. 439.

ment of the skull. Aeby says point blank, that the cranial form affords no certain means for a proper classification of races—but if the most important part of the body does not furnish us with a starting point for classification, then we ought to give up the attempt. But the want of success may perhaps be owing to a false method of investigation. Another error which underlies many views on cranial formation is this, that we search in nature for fixed types which do not exist in it. Even that form which we call dolichocephalic or brachycephalic, though probably of different origin, is not immutable. The form of a cranium is first determined by hereditary disposition, which may be altered by the influences of aliment, climate, muscular action, mental development, and intermixture with another type. Muscular pressure may have rendered the originally brachycephalic crania of the Esquimaux and Polynesians long and narrow, and the long and narrow skulls of pre-historic times may, by mental culture, have become broader in France, Germany, and elsewhere.

From what precedes, we may consider the axiom as established, that a skull which does not present the characters of a low organisation cannot be considered as belonging to the primitive man, although the skull may be found associated with the remains of extinct animals. It follows further, that we must place the primitive man lower in the scale than the rudest living savage. The Neander-skull and the La Naulette jaw present characters of a low organisation, such as we do not find in any living race. No doubt it is a great loss to science that we possess only a few fragments of the human organisation of the remotest periods. Our imagination must try, supported by the laws of organic formation, to collect the scattered parts of the primitive man, and to construct his frame; until the time arrives when a happy find may confirm our speculations and deductions relating to a question, which hitherto inaccessible to science, has become the most important of anthropological inquiries.

ON THE ORIGIN OF THE ANTHROPOLOGICAL REVIEW AND ITS CONNECTION WITH THE ANTHRO- POLOGICAL SOCIETY.

In closing our sixth volume, we purpose to give a short history of the origin of the *Review*, and to address a few words to our readers on the subject of the connection which has existed between it and the Anthropological Society of London. We have hitherto been too much en-

grossed with subjects of scientific interest and importance to devote much space to our relations with the Anthropological Society of London, and too much concerned with the present to even glance at our origin and past history. Fourteen years ago, a Fellow of the present Anthropological Society of London became a student of the writings of Knox and Lawrence. Soon afterwards he became personally acquainted with the great modern British philosophical anatomist and physiologist, whose cruel history has yet to be written. It is necessary for us to go back to this period, because at that time were commenced the labours which finally produced this *Review*. At that date (1854), anthropology in England was at an extremely low ebb. Prichard was dead, Lawrence was silent, Knox was an outcast, Crawfurd took no part, and was not even a member of the only body which then existed in England for the cultivation of any portion of anthropological science. The Ethnological Society, which had been started ten years before, was in a dying condition. It only held seven meetings in the year, and these were but thinly attended. So scarce were original papers, that the meetings were not unfrequently eked out by the reading of extracts from books of travels. Whilst in a state of utter depression, the late lamented Mr. John Crawfurd, in the year 1858, became a Fellow of the Society, and was nominated as President on the same day. From this time may be dated the *renaissance* of the Ethnological Society. Both President and other officers worked energetically in its behalf, and their joint labours soon resulted in financial improvement and marked progress throughout. Prior to Mr. Crawfurd's occupying the presidential chair, his views on certain scientific subjects had been far from popular with a faction of Quakers, who, headed by Dr. Hodgkin, were then dominant in the Society; and neither friendly nor respectful were the terms in which Mr. Crawfurd and his opinions were spoken of. It may be mentioned also, as a further example of the state of scientific feeling thirteen years ago, that the late Dr. Robert Knox was, in the year 1855, proposed an ordinary Fellow of the Society, and black-balled! He was, however, elected in 1858 an Honorary Fellow, to the horror and indignation of the Quakers. It would be wrong to conclude this part of our subject without a passing notice of Sir James Clark, Bart., who was President of the Society before Mr. Crawfurd. We do not hesitate to assert that no president of any scientific society ever performed his duty more conscientiously than did this distinguished physician. The conflicting elements with which he had to deal, however, and the little interest evinced in ethnological questions, even within the Society itself at that time, gave him few opportunities of raising the standard of scientific opinion during his régime. At the anniversary meeting of 1858, this

utter indifference came to a culminating point—the meeting consisting of but six members, the President Sir James Clark, three officers, and two other members! Nor was even this extremely select gathering by any means unanimous in sentiment, a vote of thanks to the President and Council failing to find a seconder. It was the conviction that but little good could be achieved in arousing a spirit of inquiry into the most important scientific questions of the day without some organ specially devoted to the subject of the study of the races and science of man, that led to the organisation of our present periodical.

It was in the autumn of 1859 that a prospectus was first drawn up of a quarterly journal on these subjects, and was even put up in type—the proposed title being, "The Quarterly Journal of Ethnology." Further preparations were also made for it by the translation of some of the foreign recent literature relating to the study of man, and both Dr. Knox and Mr. Crawfurd promised their active support and co-operation. Shortly after an application was made to Mr. Luke Burke, who, in 1848, edited the *Ethnological Journal*, to enter into the scheme. He was at the time, however, too much engrossed with other subjects to occupy himself with the proposed quarterly.

Other obstacles also intervened, and the plan remained in abeyance; the idea was, however, never abandoned, and many valuable works were translated and matter collected, with a view to quarterly publication when the time for it should arrive. In the year 1862 it was finally resolved to carry out this plan; but an Anthropological Society being started in England some few months later, and a quarterly journal of anthropological science forming a part of the programme of that Society, our present publication was issued conjointly with the Society's official journal. It must, however, be clearly explained that, although this connection exists between the Anthropological Society and our *Review*, the former has never been answerable for any expenses which have been incurred in bringing out the *Review*, beyond paying at a fixed rate per number for copies actually taken by the Society—whether few or many—and which payment, be it remembered, includes the printing, binding, and advertising the journal of the Society.

We shall not here enter upon the differences within the Ethnological Society, which partly gave rise to the foundation of the Anthropological Society, and at any rate hastened it. We may state, however, that one of the earliest matters of dispute was with respect to the admission of ladies to the meetings of the Society. And here we had, perhaps, better quote the words of the Founder of the Society, written in 1864. They appear in the dedication of Carl Vogt's *Lectures on Man* to Professor Broca, and run as follows:—

"Some seven years since, when I first had the honour of being introduced to you by our late lamented colleague, Dr. Robert Knox, I held, as you may remember, the office of Honorary Secretary to the Ethnological Society of London. Most heartily did I welcome the birth of your Society, on behalf of that of which I was then an officer, believing at that time the Société d'Anthropologie de Paris to be merely an Ethnological Society under another name. In watching the development of your Society, and tracing the vastness of its extent and objects, under the administration of yourself and your illustrious colleague, I soon perceived that pure ethnology merely formed a part of the grand science then inaugurated by you. With the most intense pleasure and admiration I witnessed the gradual establishment and progress of your Society, endeavouring, at the same time, with all my power to incite the Ethnological Society to similar efforts. This attempt, however (truth compels me to record), proved a signal failure—a circumstance which caused me disappointment at the moment, but which I now consider fortunate; for I soon became aware that anthropology and ethnology could never become synonymous terms, inasmuch as the latter merely constitutes a part of the comprehensive science of anthropology.

"I am glad to state that, at the present time, this profound distinction is fully admitted by unbiassed persons in England. My failure, however, in arousing the Ethnological Society from its torpor, was not attributable to this confusion of terms, the matter not having then received public attention in this country, but arose entirely from the opposite views held by myself and my colleagues as to the objects of the Ethnological Society, and its duties as a scientific body.

"The stand-point claimed for the science of ethnology by the late Dr. Knox, by Captain R. F. Burton, the present senior Vice-President of the London Anthropological Society, by myself, and by some others, was that of a grave, erudite, and purely scientific study, requiring the most free and serious discussion, especially on anatomical and physiological topics, for the elucidation of the many difficult problems arising out of the subjects brought forward. This, however, was far from being the opinion of a large and powerful section of the Society, headed by my venerable friend, Mr. John Crawfurd. The party under his leadership desired to place the Ethnological Society on a footing with the Royal Geographical Society, and to render its meetings fashionable and popular by the admission of ladies. You will, doubtless, smile at the strange idea of admitting females to a discussion of all ethnological subjects. However, the supporters of the "fair sex" won the day, and females have been regularly admitted to

the meetings of the Ethnological Society during the past three years.

"Even now the advocates of this measure do not admit their error, nor do they perceive how they are practically hindering the promotion of those scientific objects which they continue to claim for their Society. On the contrary, they rejoice at their victory, and Mr. Crawfurd has publicly, on more than one occasion, ascribed the success which attended the Ethnological Society under his régime to the admission of ladies.

"Apart from this fatal mistake, you will readily understand that other important, and indeed vital, differences existed as to the mode in which such a society should be conducted. Finding myself, therefore, unable to give my cordial support to a society whose apparent objects were so utterly at variance with my own views—views in which I was not without supporters—the idea occurred to me of establishing in this country a really scientific society, which, taking yours as a model, might become worthy of a great nation."

We have endeavoured to explain clearly to our readers that our present quarterly owes its origin, not so much to the formation of the Anthropological Society—it having been prepared to appear before the world had that Society never come into existence—as to the marked change in the public mind, which had become aroused to the importance of the study of man under all phases of his history. The change of title from that originally intended, namely, from "The Quarterly Journal of Ethnology" to "The Anthropological Review" (published quarterly), although no absolute change was made in the original plan and leading objects of the publication, allowed scope for a wider range of subjects than would have been admissible under the earlier designation.

It will thus be seen that this *Review* owes its origin to other causes than the existence of the Anthropological Society. By a happy accident, or by a well-conceived design, the two schemes have worked in harmony, and, we believe, have been mutually beneficial. Those who are competent judges on such a point, like Sir Roderick Murchison, we believe have expressed their opinion that the unexampled success of the Anthropological Society is due very largely to the existence of the *Anthropological Review*. When it was finally decided to publish the first number of this *Review*, a letter was addressed to the secretaries of the Ethnological and Anthropological Societies, offering to print their Journal or Proceedings at the end of the *Anthropological Review*. Identical terms were offered to both societies: one refused, and the other accepted. Here we cannot but think that the Ethnological Society made a very great mistake. Had

it accepted the terms offered, it might now be able fairly to encounter the society which accepted it. In this case a contemporary would not have lent its pages to the publication of ludicrous letters, containing false and calumnious charges against ourselves and the Anthropological Society. It is the very success of the Anthropological Society which has aroused so many enemies, not only amongst the masses of the people, but amongst a somewhat exclusive *coterie* who believe themselves to be the only scientific men of the day. We have long heard it hinted that the arrangement existing between the *Review* and the Society was novel in the history of scientific societies, and that it must not be allowed to exist! Such ideas are worthy of the men who uttered them. We have as much respect for the dignity of scientific societies as any-one; but we fail to see why it is necessary that they should all be modelled on the same plan; or, more especially, why such plan should be that which was originated two centuries ago.

Our original arrangement with the Anthropological Society was as follows. Our publisher undertook to print the official Journal of the Society at the end of each number of the *Anthropological Review*, on condition that the Society took a copy, at trade price, of the joint publication for each paying Fellow. In other words, instead of going to the expense of printing and binding their own Journal, they engaged to accept the offer, and thus to save themselves, at that time, at least, much unnecessary cost. Now, the *Review* and *Journal* are supplied to the Society for about 2s. 3d. per copy, and the printing and all other expenses connected with their Journal, is included in this amount.

It will probably be a matter of surprise to that majority of our readers who are unacquainted with the details of literary work, when they are informed of the actual cost of bringing out such a publication as ours; nor should we have alluded to a topic which both custom and good taste usually keep in the background, had not a faction lately introduced the subject of the finances of the Anthropological Society to the public in a spirit neither friendly to ourselves, nor tending either to promote the cause of science, or serve the Society, on whose behalf, but without whose sanction, they appear to have been made. So little was known, during the earliest years of our publication, of the aim and objects of anthropological science, and of the existence of a society for its promotion, that considerable sums of money were expended in advertising our *Review* and the Journal of the Society, which resulted in a number of persons becoming subscribers during the first year. These subscribers, learning through our pages the particulars of the Anthropological Society, almost universally joined the Society the following year, instead of remaining independent subscribers. The same thing has continued up to the present time, our external circulation remain-

ing almost in *statu quo*. Several hundred pounds have been expended on the *Review*, and it was thought, by competent judges, likely to become a good property ; or, at least, that it might be worked so as to repay the money expended to establish it. An application was made during the year 1864, to reduce the price of the *Review* to the Society ; but an investigation of our finances showed our liabilities to be too great at that time to accede to the request of the Council. In 1865, further efforts were made, at a considerable expense in advertisements, to extend the sale of the *Review*, and, at the same time, promote the prosperity of the Society. With this object a number of copies were distributed gratis. A similar policy was pursued during 1866. We freely acknowledge that these efforts were not successful so far as the finances of the *Review* were concerned, but we have the satisfaction of knowing that benefit did accrue both to the Society and to anthropological science.

We were perhaps too sanguine as to the interest of the public generally in questions so deeply interesting to ourselves. Our *Review* was, we admit, in 1865 and 1866, financially a failure. Numbers of unsold copies of these years may now be had at a merely nominal price ; and a gift has been made to the Society of a quantity of back numbers for the benefit of future members. The end of the year 1866 brought the commencement of the great financial panic. It is curious to watch the effect of financial prosperity, or its reverse, on the progress of science ; and our publication, in common with nearly all others of a scientific character, suffered from the depression of trade in 1866, and which has, indeed, continued more or less up to the present time. We decided, therefore, in 1867, to print fewer copies of the *Review*, and also to economise our expenditure as far as possible. Since that period our independent circulation continues steady and, on the whole, satisfactory.

It is not for us to speak of our own labours during our six years of editorship. Our work has been a labour of love ; but that it has been an arduous one, those who have attempted a similar undertaking will readily credit. Nor need we assert here our zeal for the cause of scientific progress, and our warm interest in the prosperity of every scientific body which strives to do honest scientific work.

Some remarks have been made against the anomaly of an independent *Review* being supplied to the Fellows of the Society. This is a question which we hope the Fellows of the Society will fully and freely discuss. We believe that an *Anthropological Review* is a necessity of the time. That it has helped to establish the Anthropological Society we feel equally sure. We do not pretend, however, that the present arrangement is the best which can be found. The subject of the pre-

sent and future connection of the *Review* and the Society has ever been one of great anxiety to the originator of this *Review*. We believe that it is to the interest of all parties, and to the advantage of science, that this subject should be fully discussed and finally settled. It is one of paramount, if not vital, importance to the Anthropological Society. If the Society will undertake the management and control of this *Review* we shall be extremely glad. We cannot see the least reason why it should not do so. The Society would have to nominate an editor, and it could then exercise some amount of influence over its pages. At present they have no risk, and consequently no control. That at an earlier period it was judicious for the Society not to accept the copyright and management of our *Review*, we cannot doubt. Now, however, the matter is changed. The *Review* is at present worked by trustees, and the profits, should there ever be any, will be devoted to the foundation of a Medal in the Anthropological Society. The originator of the *Review* has reserved the power to manage the editorial department for life. If, however, the Anthropological Society will accept the copyright and publish the *Review*, it will be handed over to them unconditionally. All we say is, that an *Anthropological Review* is a want of the time; and we shall always be glad to do all we can to establish it on a solid and, if possible, a lasting footing. On surveying our past history in connection with this *Review*, we feel that we have been engaged in a good work. We defy any honest man to charge us with merely representing the views of a faction or a clique. On the contrary, it is known to every student of Man-science, that our pages have always been open to writers of every shade of opinion. We do not profess, nor has it ever been our desire, to show more favour to the doings of the Anthropological Society, than to any other learned body. Our object has been to act as a medium of communication between students of every branch of anthropological science. Nor are we aware that we have shown that very common defect amongst the generality of scientific men of the day, viz., of restricting the limits of the science of man. On the contrary, it has been our object to conduct this *Review* in a truly catholic spirit. At the risk of giving offence to a large class of our readers, we have opened our pages to theorists and speculators of every description. Our past and present will be an index of our future. We shall still continue to disregard the feelings and wishes of party, and do all we can to become the organ of genuine free science. All we ask of our contributors is, that they should write in a scientific spirit, and base their speculations and theories on either ascertained facts, or logical inferences.

With regard to the issue of the Journal of the Anthropological

Society at the end of this *Review*, that may disappear at any moment. The Fellows of the Society will consider their own interest and pleasure in this matter. Their decision will in no way affect the general principles on which this publication will be conducted in the future. The Anthropological Society of London has now become one of the recognised institutions of Europe ; and we have little fear that it will in any way be injuriously affected by any change that it may think it advisable to make in its organisation. All we hope is, that the Fellows of the Society will be guided in their decision solely by a desire to benefit the cause of science. We have little doubt that such will be the case ; but we feel it our duty to give here a warning. For a long time, we know, it has been the object of a small but influential band of scientific men in this country, to do all they can to ruin the *Anthropological Review*. That object has long been aimed at ; now it is openly avowed by some whose praise we should consider the highest censure, and whose denunciations we look upon as our well-earned recompense for our past labours. Some parties formerly directed their thundering denunciations at the Anthropological Society. In this they signally failed. The attacks on the Society have only made it take root more deeply and more firmly. Having, therefore, been foiled in their attempt at that time to injure the Society, they now intend to make war upon this *Review*. This does not at all alarm us. We know the strength of our enemy ; but we know more—we know their weakness. In the past we have been very chary in dealing with those who have attacked us. If such beings had a spark of gentlemanly feeling, we would argue with them; as it is, we merely look upon them as curious objects of study, in whom one characteristic which belongs to all genuine scientific men is utterly absent. There are other antagonists, however, who are gentlemen. We shall always treat them as such. Honest competition and fair rivalry we consider both necessary and laudable. We are ready to take our part in a fair combat for the victory of anthropological science, without any support or encouragement of any sort from the Anthropological Society. On the contrary, we believe that some of our contributors occasionally feel hampered in the expression of their opinions by the connection which exists between the *Review* and the Society. We trust, that whatever may happen, they will no longer feel this. It has been suggested to us, that in this number we should hang out our future flag, whether the colour be white, red, or black. We must, however, decline to accede to such a suggestion. We feel too much contempt for those who attack us even to take the slightest notice of their ebullitions of spite and jealousy.

One of our oldest and most valued contributors, a short time since, sent us the following:—"There was a report that one of the indispensable conditions of amalgamation was the suppression of the *Anthropological Review*; a suicidal course, the meaning of which it is very difficult to divine."

Let us here say, once for all, that it is out of the power of any society, or any body of men, to "suppress the *Anthropological Review*." Such threats only show the silliness and weak-mindedness of those who make them.

The prospects of this *Review* were never better than they are now. Our labour as editor is daily becoming lighter, and our contributors more numerous. We are still anxious to acquire assistance from others; because it is most advisable to get all the variety of ideas and expressions which we can command. Our warmest thanks are due to the friends who have worked with us without fee or reward of any sort or kind.

In another place it will be seen that we have had for a moment to raise our visor, and to ask those who desire to attack the management of this *Review* to strike their blows direct at ourselves. We have done this merely to save others. We thought it best to come forward and receive on our own shield the blows that were being hurled at the Council of the Anthropological Society of London.

The rage and animosity of our assailants is a better guarantee to us than any other that we are doing good work. We only hope that they will continue their attacks. It has been said that no institution or undertaking must be considered safe until it has been well attacked. It is for this reason we hail the assaults made on the *Anthropological Review* and its connection with the Anthropological Society. If the connection is unsatisfactory and cannot be defended, by all means let it be destroyed. The connection, say our opponents, is unique; it is unprecedented! We partly acknowledge it is; and glory in the fact. The question now to be solved is not whether it is unique or unprecedented; but whether it is sound for the interest of anthropological science that it should be maintained? If not, by all means let it be destroyed.

At present we believe that the connection which exists between this *Review* and the Anthropological Society is a sound one, and that it can be successfully defended, as it is of interest both to the Anthropological Society and to the progress of anthropological science in this country that it should be maintained. The attack made by some kind friends on ourselves is a mere illustration of race peculiarity, and arises, we believe, from the cordiality with which the Saxon hates good government. The Saxon is said to hate all successes and

every man that has power. Saxons hate us doubly, because we tell them so. We have generally noticed that those who attack us belong to the stupid Saxon type who neither understand nor appreciate the scientific spirit of the age, and whose inordinate vanity makes them suppose that every one else is like themselves. Thus it will be seen that we can study comparative anthropology without going far from home.

The success of the Paris Anthropological Society is, we believe, entirely due to the absence of this Saxon element. Across the Channel they glory in good government, and adopt the best and most powerful organisation. Thus, in the Paris Anthropological Society, it will be seen that Professor Broca holds the perpetual office of Secretary-General, and has more power than any officer in the London Society. This does not give rise to jealousy, but to gratitude. We do not at all complain of the partial difference of feeling which exists in England, because we look upon such jealousy as inevitable. Every man who has power, or who dares to lift his head above his fellows, is hated by both the educated and uneducated Saxon boor.

A short time since Professor Broca when in London was entertained at a dinner by a select party of anthropologists. In answering the toast of his own health, he gave a most interesting account of the rise and progress of the Paris Society, and dilated especially on the beneficial influences which the promotion of the London Society had exerted on the progress of his own Society. He went on to say that the Societies of Paris and London were very much alike. Both had *Memoirs* and both had *Journals*. The London Society also published translations, but the idea of this was not new. On the contrary, one of the members of the Paris Society had, at its first formation, translated portions of Retzius' work, which was not published for want of funds. He, therefore, claimed the priority of the idea of publishing translations! Professor Broca went on to say, "But there is one thing in connection with your Society which we in Paris all admire and envy. It is your English *Anthropological Review*. It is what we long for in Paris. The existence of an independent organ devoted to anthropology in connection with your Society is the very acme of perfection. Your organisation is complete. If we do not follow your example, it is only because we want funds."

If the existence of an independent organ in alliance with the London Society meets with the approval of such men as Professor Broca, we care not what others may think or say. We will now only add, that great as is the estimation with which Professor Broca is deservedly regarded by the majority of British anthropologists, yet he is held in far higher honour by all those who have made his acquaintance. None

who heard him on the occasion to which we have referred could feel other than attracted and charmed with the man. His speech has united more firmly than ever the link which unites together anthropologists of all nations. Dr. Broca's knowledge evinced of the organisation of the Anthropological Society of London, and the relations which exist between it and this *Review*, was sufficient to shame many a British anthropologist. We are only sorry that the speech cannot be reproduced *in extenso* for the instruction of those who have hitherto been too "lazy or too stupid to understand the organisation of the London Society. We shall be well pleased that they should receive their instruction from the FOUNDER OF MODERN ANTHROPOLOGICAL SCIENCE.

The prospects of the *Anthropological Review*, the Anthropological Society of London, and, indeed, Anthropological science generally, were never, we believe, so bright as they are at this minute. Nothing is more erroneous than to suppose that attacks in periodicals, or by societies, injure them.

Our enemies are often enemies of the Anthropological Society, and very generally also of Anthropological science. They would first destroy us, then the Society, and then the science.

What would not be given by some of our detractors at this moment to any one who would eradicate that terrible word ANTHROPOLOGY from the English language?

To do this the *Review* and the Society must first be destroyed. It is of course possible that they may succeed in exterminating this *Review* at some distant day, but never the Society or the Science of Anthropology.

We think that we can promise our readers that all the strength of the enemy will be exhausted in killing us. The Society will yet remain as a great fact, and Anthropological science will some day be appreciated, if not venerated, by every man who loves truth for its own sake: and it is for such alone we labour and whose good opinion we desire.

Anthropological News.

THE FINANCIAL POSITION OF THE ANTHROPOLOGICAL SOCIETY OF LONDON.—Some wiseacres have recently made what they believe to be a discovery, but which now turns out to be nothing more than a veritable "mare's-nest." On the 4th of February last, when Dr. Hunt took the chair after his election as president, he made some remarks on the financial position of the Society, which were printed at length in some of the daily papers. The *Globe* gave

the address at length. When however the Journal of the Society came to be issued, a kind friend pointed out to a busy-body of the worst type, that portions of this address had been suppressed. Here was a chance for the enemies of the Society! Now would the jealous or disappointed join together to attack the management of the Society! But between February and August the whole aspect of the affair had changed; the financial position of the Society which was not satisfactory in February was eminently so in August. During this period it is well known that the Council of the Anthropological Society had been working incessantly to get the finances of the Society into a more satisfactory condition by calling in the amount due to the Society. In this they have been successful. Some men are either too ignorant or too conceited to master a subject before they write on it, and hence the fiasco which they produce when they appear in print. The following extract from Dr. Hunt's reported remarks on taking the chair are omitted from the Journal of the Society, and as they are the basis of the whole of the attack made on the financial position of the Society we reproduce them here.

After remarking, "But while we entertain a merited contempt for the opposition which is offered to our Society, either from the public or from semi-scientific men, we cannot be too careful to make ourselves thoroughly masters of what is our present position, both in a financial and scientific sense." Dr. Hunt is reported to have gone on to say, "In the first place, therefore, I cannot hide from myself, nor do I desire to conceal from you, that the present financial position of the Society is in an unsatisfactory state: that state is caused solely by the large defaulters' list. The question which we now have to face is the probability that our Society will have to go through the painful stages I have alluded to, before it finally becomes as successful as we all desire it to be. I have been induced again to become your President solely with the hope of averting the dangers which threaten us.

"With regard to our finances, I will now only observe, that if we take our assets and liabilities, we bear a very good comparison with any scientific society in this metropolis. The income and expenditure of this Society, during its brief existence, has far surpassed that of any scientific society ever established in Great Britain. Our income in—

1863	-	-	was £	525	10	0
1864	-	-	-	1335	8	4
1865	-	-	-	1555	14	1
1866	-	-	-	1458	9	9
1867	-	-	-	1215	8	1
Total in five years			-	£6090	10	3

If we compare these sums with the income of similar societies, we shall be better able to understand our present position and our future danger.

"The above sums include our income from every source; but it will be seen that if we compare our income from annual subscriptions, it exceeds that of societies of a similar character. Thus, the Geological Society, whose total income in 1865 was £1900 : 5, only £594 : 16 : 6 came from annual subscriptions, the remainder being produced from Compositions and Admission Fees, and £141 from dividends on Consols; while the amount received by us for Annual Subscriptions during the same year was £1000 : 15 : 11. I do not

propose, however, to trace the history of the fluctuation of the finances of all other societies, but will merely now take one illustration, which will sufficiently serve as a warning to us.

" Thus, we learn that twenty-five years ago, when our active and zealous Fellow, Dr. Richard King, founded the Ethnological Society of London, it consisted, during the first year, of twenty-five Fellows, eight of whom withdrew the next year. Three years later, through the exertions of Dr. King, the income of the society was raised to £299 : 12 : 9. Some changes then took place, and after a little time it ceased to publish anything. For nearly seven years it remained in a state very much resembling death, until, in the fifteenth year of its existence, it had no more than thirty-three paying members, with an income far less than its expenditure, and barely amounting, by annual subscriptions, to £50 per annum; besides this, it had incurred a very considerable debt. How it survived this well nigh hopeless state, and how by its attempts to do so it sealed its own fate, I need not now stay to inquire. Suffice it to say that although the presence of ladies at the meeting might have conduced in some small degree to free it from its pecuniary embarrassments; yet, from the time of their admission, it has lost any claim to be ranked as a purely scientific society.

" We now learn, however, from the last balance sheet of that Society for 1866-67, just issued, that the income from all sources was only, for the year, £299 : 18 : 4. It has no funded or other property to compensate for the amount received for Life Compositions, which now amount to twenty-five per cent. of its Fellows.

" With regard to our Society, all our life compositions are amply secured, and invested in property, consisting either of furniture, books, or copyright, and stock of translations, etc.

" In reference to our income, I feel very strongly the great necessity there is at this time for zeal and unity of action on all sides. It is alone by zealous co-operation that we can hope to escape the financial ordeal through which other societies have had to pass.

" Of our finances, I will only observe that, taken as a whole, they are rather better than when our present Treasurer took office. I think all will join in an endeavour to render them still more satisfactory. It is no small matter that we have undertaken to do, nor can it be effected without a considerable sum of money, and a large number of real workers and a still larger number of paying Fellows.

" My suggestions would be to relinquish all schemes which were not contemplated in the original formation of the Society. We had better do a little and do it thoroughly, than embark in doubtful enterprises. We have plenty of good scientific work before us, and now will come the test of who are the real lovers of science for its own sake. The history of the Society during the next few years will be of more importance in deciding its future character as a scientific body than that which it has effected in the past. Now we have not only our past experience to guide us, but we must feel also that many plans and schemes attempted in the early history of a society are no longer admissible when we have a scientific character to sustain and consolidate.

" On taking the chair to-night as your President, I do so with a full knowledge that I have undertaken a most difficult and responsible position. The experience of former years has taught me that no man can properly fulfil the duties of this office without a very considerable amount of trouble and great anxiety. I can also assure you that the duties belonging to the office of

Director are equally exacting, and perhaps more laborious. Neither the Director nor myself hold our respective offices by our own seeking. Indeed, no man can or will ever be elected to either of these offices by his own desire. It is alone a man's colleagues whose right and whose duty it is to call on him to assume office. Why I am not allowed to "rest and be thankful" I know not; but I trust that I may be able to do so at no distant day.

"In the meantime I will only add that my efforts shall be devoted (as far as my health will allow me) to a sincere endeavour to establish the society on a firm basis, and that I will do all I can to promote its material prosperity, and to sustain the dignity and importance of the science.

"I will only ask from my colleagues that support which I shall in my turn be ever ready to give to my successors,—and of the Fellows of the Society generally, and the Council, that unanimity of action and feeling by which alone great events and great deeds can be accomplished.

"In conclusion I would desire to beg of those who take part in our discussions, to remember in the future that we shall do well to avoid, as far as possible any appearance of speaking as though we were fighting for victory and not for truth. Science cannot be advanced if its problems are discussed as party or personal questions. At present I believe we are more free from this danger than we have ever been before. Those who object to our non-acceptance of the biblical account of man's formation as the starting point of our inquiries we can now consign to the 'Victoria Institute'; and those who, from diseased livers or disappointed ambition, cannot discuss scientific questions without a childish exhibition of temper, to the softening influence of the female sex, at the Ethnological Society.

"I trust that by our united efforts we may ere long be able to declare that our financial and scientific position is both consolidated and finally and permanently assured."

Now some of our readers may ask by whose authority were these extracts omitted? The answer to that question is we believe excessively plain. Not half, or perhaps a quarter, of what is said before the Society is ever printed; what shall be printed is, we believe, decided by a Publication Committee. We think in this case they made a mistake, as it has given a chance to the enemies of the Society which they have not been slow to avail themselves of. We trust that the castigation that one of such scribblers has received from the Council of the Society will be a warning to others who feel inclined to travel the same dirty path, in order to obtain a temporary notoriety as great financial authorities or as reformers of scientific societies.

EARLY MAN IN ITALY.—In a small but most interesting memoir, entitled "Antichità dell'uomo nell'Italia Centrale," 8vo., Prof. Nicolucci gives an account of certain excavations made in June last, which afforded him the opportunity of confirming the existence of implements worked by human hands, in the upland gravels (*banchi diluviali*) of the Tiber, in the neighbourhood of Rome. He has collected them from the cave-gravel at Pontemolle and at Tor di Quinto. It is to be regretted that the section of the gravel which he states he laid before the Academy has not been published, but the conditions of deposit seem to be the following. A vast alluvial deposit near Rome extends over the land at a level of more than thirty metres above that of the winter floods of the Tiber, and is composed of sands and breccia irregularly mixed together and disposed in very uneven beds, which the author considers due to the changes in deposition produced by the variable currents of the great stream. This material consequently represents *detritus* brought from all the beds over which the

river flows; chalk and flints from the jurassic, cretaceous, and eocene rocks, which constitute the Apennines; and breccia and volcanic materials from the sub-Apennine lands.

The worked flints are found throughout the whole extent of this deposit, and most commonly at a depth of ten to twelve metres from the surface of the soil. They consist of knives, arrowheads, lanceheads, scrapers, wedges, and all are of such rude workmanship that they almost appear to be natural productions instead of works of art; they are all chipped from flints usually either yellowish and translucent, or greyish opaline, and which evidently are not derived from the neighbouring hills, but have been brought by the river from the central region of the Apennines. In the same beds are discovered the remains of large extinct pachyderms (*Elephas antiquus, meridionalis, primigenius*), mixed with those of such contemporary animals as *meles*, *felis*, *testudo*, &c. It may be noted that Prof. Nicolucci does not mention the species of *felis* here discovered.

These are not the only discoveries. The brother Indes explored a bone-cave at Monte delle Gioie, near Ponte Salara, where he found stone weapons and utensils associated with *elephas primigenius* and other extinct animals. When, however, father Secchi and MM. Ponzi and Rossi visited this cave, it was found to have had the strata so disturbed by the excavations of the first discoverer, that precise evidence of the locality where each respective object was found was unable to be brought forward.

Prof. Nicolucci speculates on the probable amount of physical changes which the adjacent territory has undergone since the time of the deposition of these implements. He is apparently inclined to refer more to cataclysmal action than is the custom in England.

A description of the objects found, and a notice of some analogous discoveries in the island of Capri, close the present interesting little memoir.

DR. C. CAETER BLAKE returned from Nicaragua in the middle of July last. We believe that it is his intention to contribute a paper on the natives, both Indian and mixed breeds, during the ensuing session, to the Anthropological Society; and that he will also lecture on "Central America, its physical features, population, and resources," at Hull and other places.

CELT AND SAXON.—We are glad to notice that the public papers are beginning to call the attention of their readers to the writings of Dr. Knox on "Comparative Anthropology." The following is extracted from the *Pall Mall Gazette* of Sept. 11, 1868. Speaking of the lectures which Dr. Knox published twenty years ago on Race it observes,—

"These papers were distinguished by boldness both of language and assertion, but they bear the marks of profound conviction, and though they prove the author to have been almost a fanatic in his faith, some of his observations are highly suggestive. Indeed, for the force and truth contained in them, and as far as they can be gainsaid, many of them might have been written at the present moment instead of a score of years since. His theories concerning Celt and Saxon, and the extent to which they are supported by experience should be of interest just now; and even if the English public refuse to consider them they will thereby but so much the better prove his words, since, according to Knox, the Saxon is ever prone either stupidly to ignore, or with arrogant incredulity to deny and mock at, the laws of race: 'All other races and all other men he holds in utter contempt.'

"No doubt, calmly considered, the present state of things is from one point of view sufficiently extraordinary. On the one hand, in London alone, within

a very short space of time there have been some scores of robberies committed in our streets, many in the full light of day, most of them accompanied by a brutality and violence perfectly sickening. Policemen are kicked until they can scarcely move; women have had their heads and faces battered until they lost all likeness to humanity, they are knocked down, robbed, and insulted; men fare no better; lookers-on exhibit no indignation, and offer no assistance either in protecting the victim or arresting the guilty parties; and even policemen are beginning to content themselves with following the miscreants at a safe distance until they meet with a brother constable to aid them. Then let us glance at Ireland. It is at the present moment free from crime to a degree that may well make Londoners sigh to think of. The judges go about the land finding little or nothing to do. In one place it was stated that these august personages, together with the jurymen and barristers, went forth to play at cricket; in others white gloves were presented, in token that there were no prisoners for trial. Everywhere the judges congratulate the authorities on the remarkable absence not only of serious crime, but of almost any kind of crime at all. But let us strike a little deeper into the strata of humanity. Mr. Kingsley, presumably with reference to his own countrymen, says that every man has something of the blackguard in him; and we may admit that the genuine 'rough' is an Anglo-Saxon product, but in the Celt there is even in quiet times something of the wild cat, and if he is exasperated on certain subjects, when he conceives himself insulted or oppressed, sometimes also at the mere sight of blood shed in fight, he develops traits which suggest a cross with the tiger. Thus even while the sunshine lies on the Irish landscape there are clouds in the horizon which indicate not one electric explosion, but many, and passions altogether human will be appealed to and gratified in the name of religion. Only very lately some hundreds of Irish Catholics lay hidden in a glen all night, in the hope of a battle next day. Nor did they hope in vain. The Orange party walked forth in the early morn, the customary affray ensued, blood flowed pretty freely, and a score of men got broken heads. In fact, no sooner is the green or orange colour displayed, or the obnoxious tune heard, than every Irishman arises in his strength, trusting, as one of them said, that 'when God provides a shillelah to strike, he provides a pate to break.' At another place something like a battle took place; the Orange party had to fly for their lives, firearms were used, a certain number of the combatants were killed, and when the bodies of these persons were borne to the grave nearly a thousand excited human beings knelt down with bared heads before the house whence the shots were fired, and invoked Heaven's curses on the murderers. Then there was a long silence, and they all rose up and followed the funeral procession, the women wailing, shrieking, and keening, as is their wont; for Irishwomen, in rags, dirt, and untidiness, have always their wits and their tears ready for their country's service. But time would fail us to tell of all these affairs; one is very much like another, and they are reproduced in England in exactly the same form wherever the same causes exist and there are a sufficient number of Irish to take advantage of them. There may be good times or bad times, and, in the sense we mean, these bad times are bad for reasons which Englishmen cannot even guess why or wherefore they have power to enrage or depress the Irish nature; but so long as the Celtic race exists these scenes will recur.

"Knox believed that neither climate nor anything else can permanently influence, far less change, the type of a race. Destroy a race it may, and does, but never converts it into anything else. No race, according to him,

could occupy, colonise, and people a region of the earth to which they are not indigenous, and he believed in the physiological law which extinguishes mixed races. Intermarriage between them only affects them temporarily; the stronger or more numerous absorbs the other, and the offspring revert to the old type. Of the Celts the Gallic proponderates in numbers; then comes the Irish, and afterwards, at a long distance, the Welsh, Canadian, and Caledonian Celt. Of the Iberian Celt he makes no mention. Let us examine a little Dr. Knox's assertions concerning Celt and Saxon, for though arrogant enough—he claims to be the descendant of John Knox—they are often amusingly true to this day. The Celt is of all races the most military in the world—not more, not perhaps so courageous as the Saxon, and far less self-reliant, but essentially warlike. He delights in battle and bloodshed. 'From Brennus to Napoleon the war cry of the Celtic race was, To the Alps! to the Rhine! This game, which even still engages their whole attention, has now been played for nearly 4000 years.' It is the Celtic nature; the Celt cannot change it if he would. His natural weapon is the sword; knowing his weakness in the torso, he does not wrestle or box. It is to him that the Saxon must look for aid if ever Russia threatens to overrun Europe, and this has already occurred once. In religion, whether Roman or not, he is always Catholic. 'The Saxon may take his religion from his lawyer, the Celt will not.' The Welsh Celt and his Cornish brother are Methodists. They favour revivals and love feasts, and among them mormonism obtains easy victories. When the Caledonian Celt is not a Catholic he is still rarely of the Established Church; he is to the backbone, like all his race, credulous, imaginative, a seer, a prophet, or a poet. But the great majority of the race are Roman Catholics, in which religion they find a hundred consolations, and every conceivable method of indulging the imaginative faculties. When the Celt violently casts off this religion, he almost invariably becomes a Jacobin sceptic or a furious democrat. Many of the French Celts act thus, nevertheless they often elect to die in the faith in which they refused to live. The Celt is dirty, indolent, brave, irascible, and treacherous. Not because he is a Catholic, but because he is a Celt, for which reason also he is a Catholic. 'Seignories, monkeries, nunneries, feudalities, do not form, neither do they modify the characters of any people; they are an effect, not a cause. Let chroniclers say what they will, they indicate the character of a race, they do not make that character.' He is unable to understand, or even to enjoy constitutional liberty; he craves for a scientific administration and a swift wise despotism. Preferring revolution to reform—in this differing from the Saxon—he no sooner obtains his liberty than he hastens to elect a tyrant.'

THE ANTHROPOLOGICAL REVIEW AND THE ANTHROPOLOGICAL SOCIETY.—The following particulars respecting the *Anthropological Review* may interest some of our readers. The reason of their publication is to enable the Fellows of the Anthropological Society to have some data on which they may be able to form an opinion respecting the desirability of the acceptance of the copyright, which has been offered to them unconditionally, and free from debt:—

60, Paternoster Row, Sept. 12, 1868.

There seems to be a very considerable misunderstanding amongst the Fellows of the Society respecting the connection which actually exists between the *Review* and the Anthropological Society. The *Anthropological Review* is not, and never has been, any more under the control or influence of the

Anthropological Society than is the *Athenaeum*. The sum paid for the *Anthropological Review* includes the printing, binding, circulating, and advertising the *Journal of the Anthropological Society*.

With regard to the birth of the *Anthropological Review*, it owes its origin to a period long anterior to the advent of the Anthropological Society, and was originally intended to be published in 1860, under the title of the *Quarterly Journal of Ethnology*. When the *Anthropological Review* was started in 1863, it was not intended to become in any way the organ of the Anthropological Society. The very identical terms on which the *Anthropological Review* undertook to print the *Journal of the Anthropological Society* were offered to and declined by the Ethnological Society.

Those interested in the progress and popularisation of science in this country, may be perhaps glad to know some particulars respecting the early financial history of a scientific periodical, which has become in such a short period so influential as to attract public attention, and so powerful as to be the fear of all those who desire to stifle free inquiry and discussion respecting Anthropological Science.

Cost and receipts of the *Anthropological Review* and *Journal of the Anthropological Society*, for five years, 1863-7 inclusive:—

<i>Dr.</i>	<i>£ s. d.</i>	<i>Cr.</i>	<i>£ s. d.</i>
Printing and binding Nos. 1 to 19 . . .	1555 15 11	Received from Anthropological Society of London, to Dec. 31st, 1867 . . .	1501 5 6
Advertising . . .	450 0 0	Due from ditto on Dec. 31st, 1867 . . .	312 10 0
Translations,* articles, sub-editing, &c., as per receipt . . .	500 0 0	Received for sale of copies and advertisements, per publishers, up to Dec. 31st, 1867 . . .	513 1 7
Honoraria to authors of articles not included in the above sum . . .	21 0 0	Deficient to Editor . . .	539 18 10
Books bought for contributors . . .	125 0 0		
Engravings . . .	35 0 0		
Reporting . . .	20 0 0		
Three annual dinners to contributors during first three years . . .	70 0 0		
Postage of free copies of <i>Review</i> and miscellaneous expenses at £5 per No.	90 0 0		
	<hr/> <i>£2866 15 11</i>		<hr/> <i>£2866 15 11</i>

So much for the curious; and now for myself. It will be saving me much trouble in answering questions if you will allow me to inform those of your readers who do not know it already, that I originated and have since maintained the *Anthropological Review*; that for six years I have been its sole responsible Editor; and that having been during that period more than repaid for my expenses and trouble in the pleasure I have received thereby, I mean to continue my labours in exactly the same spirit as heretofore.

To all, therefore, whom it may concern, I give notice that I have reserved for my own life the control of the editorial department of the *Anthropological*

* In this item are included translations of many articles which have not yet been printed.

Review, as long as it is not the property of the Anthropological Society, and that it will afterwards be managed by trustees whom I have appointed for that purpose.

The profits which may arise from the sale of the *Review*, as long as it is connected with the Society, will be devoted to the foundation of a medal in the Anthropological Society. It is possible, however, that the Society could conduct the *Review* at a smaller expense than a private individual is able to do. It is for this reason that I have urged, and still urge, the Anthropological Society to accept the copyright of the *Review* unconditionally and free from debt.

With regard to the policy, expediency, or morality of printing the Journal of the Society in connection with the *Anthropological Review*, I shall be happy to give my best thanks to any one who will inform the Council of the Society of a cheaper and, on the whole, a better plan of distributing and advertising their Journal.

Whether the Fellows of the Anthropological Society think it right to publish their Journal at the end of the *Review*, or in any other way, is a matter which alone concerns them. They have often had, and will soon have again, opportunities of expressing their opinion on this point. As matters now stand, I feel bound to continue my labours as Honorary Editor, and to pay the penalty of such distinction if only for the benefit of the Anthropological Society. While however saying this I am fully conscious of the important services which the *Anthropological Review* has it in its power to render to the progress of Anthropological Science, not only in this country but throughout the civilised world. I believe that the *Anthropological Review* supplies a want of the time, and, whether it is supported or opposed by the Anthropological Society or any other learned body, it will still continue to perform the duty for which it was originated.

JAMES HUNT.

DR. J. C. NOTT, HON. F.A.S.L.—The following letter, addressed by Dr. J. C. Nott, late of Mobile, and now of New York, the eminent anthropologist, to Mr. Kenneth R. H. Mackenzie, F.S.A., F.A.S.L., of London, will be read with interest and satisfaction by the scientific world, as it removes to a remote period the great loss anthropological science would have sustained by his premature demise, of which rumours have been current.* The letter arrived too late for insertion in the last number of the *Review*.

" New York, 12th June, 1868.

" No. 16, West Twenty-third Street.

" Kenneth R. H. Mackenzie, Esq., F.S.A., F.A.S.L.

" My dear Sir,—It is but seldom that a poor mortal, particularly an outside barbarian, enjoys the high privilege of reading such a eulogy of himself in a London periodical, as I am indebted to you for in the last number of the *Anthropological Review*, and for which I take this opportunity to return you my most grateful thanks. This is the third time I have been killed off, and had my good deeds ventilated, without an unkind word about the bad ones.

" It grieves me sadly to think you may have all your work to do over again one of these days; and were it not for fear of damaging the reputation of the Society, I would gladly hang myself, and stop my career just at this fortunate juncture, when I have made all the reputation I am capable of, and far more than my vaulting ambition ever aspired to. But, as Mr. Webster

* Journ. A.S.L., vol. vi, pp. lxxix-lxxxiii.

said, in the delirium of his dying moments, 'I still live,' and will live in your *éloge*, but with the melancholy reflection that I can add nothing to my fame, and must put you or some other friend to the trouble of burying me a fourth time.

"At a meeting of the New York Ethnographical Society, a friend, quite to my surprise, and the amusement of the members, produced a sensation by producing and reading the eulogium. This was the first meeting I had attended, and it made quite a merry introduction to all present.

"The mistake with regard to my death doubtless arose from the fact that I lost a brother, Dr. G. A. Nott, Professor of Materia Medica, of the Medical School in New Orleans, a few months ago.

"I was, when our terrible civil war broke out, living in Mobile (in the Confederate States), and, through cordon by land, and blockade by water, was cut off from all outside resources, and did not, for four years, see a new book from Europe. After the close of the war, for two years I was hattering about, looking for a home and a country; and, about a month ago, came to pitch my tent in New York with my family and the fragments of a fortune saved from the horrors of civil war, and here I hope to live and die.

"I, for six years past, till I came to New York, have not seen even a number of the *Anthropological Review*, to say nothing of the many valuable books published during that time; I am now, however, in a congenial atmosphere, and am posting up as fast as I can.

The problem of race is now being worked out in our country with a vengeance, and on a large scale. I send you a little brochure, written at the request of the editor of the New Orleans *Medical Journal*, and published two years ago. It will show you what I then thought about the negro; and all that has transpired since is but a fulfilment of my predictions, which are the plain teachings of anthropology.

"The condition of our Southern States is such that no white man belonging to the soil, who has any self-respect, can live there longer; and for this reason I have quitted the country in which I have lived and prospered for thirty years. The rule at the South now is one not only of austere despotism, but of negro domination. Just think of the old state of South Carolina, with her chivalrous population; the native white population is disfranchised, and the legislature is now composed of one hundred negroes and fifty white, worse than negroes, who cannot read or write. The whole legislature and the civil officers of the State pay but £150 taxes per annum, and a tax is levied of £400,000! This is a hard fate for a people who fought for principles, and for a construction of the Constitution, that had been at various times acknowledged and endorsed by all of the old thirteen States that framed the Constitution.

"But, my dear sir, I did not sit down to bother you with politicks, but merely to assure you I still live, and hope to have much enjoyment out of the proceedings of the Anthropological Society.

"Very respectfully your obedient servant,

"J. C. NOTT, M.D."

To this letter Mr. Mackenzie replied in the following terms:—

"To J. C. Nott, Esq., M.D., Hon. F.A.S.L.

"My dear Sir,—I am truly glad to receive your welcome communication, and apologise for killing you without a licence. Long may you live to enjoy prosperity, good health, and the satisfaction of seeing the science you have contributed so much and so firmly to establish received in all parts of the

world with the respect it so eminently deserves. I cannot, however, withdraw any expressions I have used in the brief notice I was honoured by being allowed to draw up for presentation at our anniversary meeting last January.

"Your leisure will, I trust, now admit of you resuming the studies interrupted by the late unhappy political condition of the United States, and it is to be hoped that the world will, ere long, profit by your labours, as it has done heretofore.

"What you say on the condition of the black race in America is indeed melancholy, and I fear, even under the wisest legislation, it will take a very long time ere the country will recover from the blow this has aimed at the general prosperity. I have no faith in the advancement of the negro in social life, and over here I have had ample opportunity of seeing coloured people of the best stamp. Las Casas, indeed, left a terrible legacy to the New World, by his supposed humanity.

"I remain, my dear Sir, most faithfully yours,

"KENNETH R. H. MACKENZIE, F.S.A., F.A.S.L.

"London, July 31st, 1868."

THE MANCHESTER ANTHROPOLOGISTS.—Our readers will not be surprised to learn that the Anthropological Society of Manchester is just now in a position of great difficulty, owing to a difference of opinion respecting the discussion of missionary enterprise, and also as to the utility of printing reports of their discussions. No one who knows the foul means which have been used by some parties to arrest the progress of the Anthropological Society of London will be surprised to hear that every sort of difficulty has to be encountered by the anthropologists at Manchester. When this Society was started such a result was expected. A provincial city is a very different place from the metropolis, and we are not therefore surprised that, with pressure from outside and from some differences of opinion from within, there is a chance of the Society suffering very materially. In the first place we ought to say a few words on the discussion which took place last year, and is just about to be re-opened at their first ordinary meeting by the reading of a paper by their President, Mr. George Harris, "On Foreign Missions in Connection with Civilisation and Anthropology." We are fully conscious from reading the public papers last year, and also from what we have since heard, that a great deal of misconception exists as to their object in discussing such a question. There is even amongst themselves a difference of opinion respecting the desirability of discussing such a subject. We thoroughly sympathise with the fears, and admire the manner in which these gentlemen have shown their objection to the course the Council of the Society has decided in taking in this matter. It is their good fortune to have only elected as Fellows those who have shown by their conduct that they are in every sense really gentlemen. This ought to be for them a matter of most sincere gratification, for such can be said of comparatively few other scientific societies. It is, therefore, no small satisfaction to know that, although there is a considerable difference of opinion amongst them as to the advisability of discussing the subject of Christian missions, yet we have the satisfaction of feeling that they are all animated in this matter by one spirit, and that those who desire the subject to be discussed, and those who object to any such discussion, are alike influenced in their opinion solely by an honest desire to do what is best for the interest of the Society and of the science. While we sympathise with those who have retired because this subject is to be discussed, we trust that their fears will prove groundless. We suspect they had good cause to

fear the result on the future progress of the Society. Our past experience leads us to express the belief that the seceding members have shown the greater wisdom; but that the Council has evinced the greater moral courage. Both parties we know are equally zealous and honest: and both equally in the right. Had we taken part in the discussion, we should have sided and voted with those who have temporarily left the Society. The President of the Anthropological Society of London has been appealed to by the Fellows of the Manchester Society. By one party he has been asked to try and prevent the discussion from taking place, by the other to support the decision of the Council. His reply to both parties is as follows:—

"Anthropological Society of London, 4, St. Martin's Place, W.C.

"September 4th, 1868.

"**MY DEAR BRETHREN,**—Let me first say most emphatically that when a choice has to be made between the good of science and the good of a society, I, for one, would never hesitate as to which course I should adopt. Your Council are in that position. The discussion of the influence of Christian missions has been forced upon them. You are suffering from one of the inevitable effects of the sins of your parent, the Society in London, over which it is my honour but misfortune to preside. I well remember the discussions which took place before the Anthropological Society of London, and the difficulty I then had in keeping the speakers to the subject in hand. The Society, however, determined that it should be freely and fairly discussed. It was at that discussion that Bishop Colenso first made his appearance before a London audience after his return from Natal. How we came to survive the storm which beset us on that occasion I hardly know. On all sides I was told that the Society could never recover such severe shocks as it continually receives from those pestilential publications called religious newspapers. The character drawn of our Society on that occasion is very much the same sort as that which such papers as the *Morning Advertiser* recently gave the British Association for the Advancement of Science, and as other papers are now giving a somewhat insignificant body in London, called the 'Dialectical Society,' which is presided over by Sir John Lubbock, Bart., he having his right-hand man, Professor Huxley, for one of his vice-presidents, and Lord Amberley for his occasional substitute in the chair. Now, hard blows do not kill societies, but sometimes they destroy a man's character with the ignorant masses who at present inhabit these islands. Nothing could be more universal amongst the religious and Radical press than the condemnation of our Society for daring to discuss the effects of missionary efforts on savage races. You will naturally be anxious to know what was the result? On looking at the history of that period, I have no hesitation in saying that the discussion, on the whole, did us good. It produced, it is true, a secession of members, and a little disturbed our balance sheet; but if it injured us financially, it benefited us scientifically. We were told that it had done the missionary societies good and increased their incomes. Ever since we have been expecting some sort of return, and our treasurer has been fondly hoping that he might receive a substantial acknowledgment of the good we did them. Now, the fact is discussion always does good to the right cause. It looks suspicious if missionaries cry out against discussion. On the contrary, I cannot but think that in the end missionary societies, especially those connected with our National Church, will come to see that we are promoting their interests very materially. By pointing out their failures, we do them a service. If it can be

shown to a rational man that by turning a Mahomedan Negro of West Africa into a Christian Negro, you make him a far worse character, mentally, morally, and physically; then I doubt if such a one would advise a continuation of a process of mental, moral, or physical debasement. Many persons who have travelled in Africa make such an assertion; it will be for you all, if possible in the same spirit to examine into the truth of such a charge. I hope your chairman will strictly bear in view that your Society does not want to know what men believe about this matter, but what they absolutely know from observation or from the writings of others. The opinion of missionaries must be taken from their own words, and not as they issue from missionary societies, unless it is affirmed that all these reports are printed exactly as they are sent home. That Christian missionaries have done good to savage races is most undoubted. But the question is, could they not in some cases do more good? I will not even hint by teaching Mahomedans, but leave the *how* entirely for their own consideration, feeling sure that if they are bent on doing good, they will, if practical philanthropists, find a way without persevering in Utopian crochets.

"Having said so much let me now say a few words on the probable effects of your discussion on your future history, read by the light of the experience of your parent society. At the conclusion of our discussion on the subject a small party of about twenty gentlemen decided on withdrawing from us, and founding another society which would devour ourselves and many other scientific societies. It was formed under the title of the "Victoria Institute," and has always been presided over by that once popular favourite, the Earl of Shaftesbury. I have attended the meetings on one or two occasions, and, unlike the 'Dialectical Society,' I have never found any subject discussed which was not entirely appropriate for a mixed audience. Of the twenty members we lost on that occasion there was only one whose loss we had greatly to deplore, and that was Mr. James Reddie, the zealous honorary secretary of the Victoria Institute. He is a man of crotchets with a brain producing wonderful illusions, but one whose speaking always produced laughter, and who is at the same time a scholar and a gentleman. It is, however, most desirable that there should be only one 'Victoria Institute, or philosophical society,' for their philosophy consists only of allowing men of one opinion to enjoy the pleasure of membership of their body. No one can join as a member who does not profess to believe in the theological creed laid down in their rules. This you will no doubt admit is a novel way of pursuing philosophic or scientific investigation; indeed, to call such a body a philosophic society is a monstrous absurdity. The time, however, seems fast approaching when some standard of merit, character, and perhaps of opinion, shall be sought for in all those who are anxious to join a scientific body. With regard, however, to the influence of the Victoria Institute on the progress of anthropological science in this country, it has absolutely produced no effect whatever. This association, although calling itself a scientific body, has really no claim to such a title; it merely exists, and is only interesting as the outcome of the discussion of the subject of Christian missions which was held before the Anthropological Society in London. It was started in entire ignorance of the aim and objects of the London Society, and had it not been founded in the heat of controversy would most assuredly have never come into existence at all. It was then thought, as some now think, that the object of the society in discussing such a question was to injure or expose the uselessness of Christian missions. Never, can I assure you, was

there a more erroneous supposition; we then, as I hope you are now doing, merely desired to know the truth. To state that our object was to attack missionary enterprise is to entirely mistake the facts; the language employed by the advocates of missionary enterprise towards the conduct of the London Society on that occasion was certainly not calculated to inspire the frame of sentiment with which some anthropologists then delivered their opinions.

"I trust that nothing which was said by either party in the excitement of that celebrated debate will now be brought into your discussion. Let both parties give each other credit for a sole desire to know the truth, and I do not fear but that good will eventually come from your discussion. I do not think, however, the day has yet quite arrived when such a subject can be discussed with any great advantage to the progress of science. That some scientific men are animated by a desire to expose what they consider the uselessness of Christian missions, is a fact of which there can be no doubt. Other supporters of such a discussion may be influenced by a desire to injure the Christian religion itself. Such sentiments did not, however, animate the Council of the London Society on that occasion; and I feel equally sure that entirely different sentiments now exist in the breasts of the President and Council of your Society. Let both parties in such a discussion bear strictly in view that truth, and not victory, is the sole legitimate object of all scientific inquiry and discussion; and I have little fear that missionaries will have the sound sense to perceive that anthropologists who in such a spirit conduct their investigations, are really the best friends of missionaries, while anthropologists will, on their part, perceive that missionaries are valuable workers and experimentalisers for many difficult anthropological problems. I cannot, indeed, imagine an anthropologist desiring to put a stop to missionary enterprise. If I heard of one, I should class him in a special category, and he should have for his associates men, although neither idiots nor lunatics, still more objectionable than either. Men afflicted with a combination of vanity and imbecility do, somehow, find their way into every scientific body. They are a disgrace to every Society to which they belong. Some of such characters are *habitues* of many of the London societies. To see their name in print is the sole object of their lives. To discuss with such men is to pay them real homage; while to morally kick them in public is an honour of which they are proud beyond measure. I speak thus plainly, because I know that men who sometimes take part in the discussions before London societies, unfortunately for themselves, often get their speeches reported. Professor Levi, the other day, at Norwich, in reading an admirable paper on Scientific Societies, spoke of the great advantage of a report of the speeches at scientific societies. Our Society in London is nearly the only scientific society in which this plan is adopted. While agreeing with Professor Levi as to the value of these discussions generally, as a means of advancing scientific inquiry and thought, I cannot, at the same time, hide from myself the practical difficulties of such a proceeding. The editors of the journals of scientific societies have the painful duty of applying the pruning knife to such speeches. Never are they able to give satisfaction. I say this, because I want to impress on you that a Society must not be held responsible for the report of some of the speeches which appear in their Journal. At the same time, I cannot but think that the Councils have hitherto been remiss in not issuing strict orders to the secretaries never to insert the speeches of such ranters. Professor Levi, I feel sure, hardly knows the diffi-

culties caused by an official report of the proceedings of our scientific societies, or he would hardly have treated the matter as one purely of unmixed advantage. That it is desirable, I never doubted; but that it is difficult, I am equally sure. Professor Levi spoke of a "judicious abstract" of the discussion. The only really judicious abstract that I could make of some of the speeches occasionally delivered at societies which I frequently attend, would be their entire omission. At the end of last year, the council of one of these societies issued orders to the editor to condense the discussions. This order produced such a "storm in the teapot" as was never before seen. These men do not form a very large percentage in any scientific body, but they league together and demand, in their own peculiar and eccentric manner, to know why their speeches are not reported? The crisis in the history of a scientific body becomes very serious when the speeches of such men are condensed or omitted. Such kindness, I can assure you, they do not appreciate; and, under such circumstances, I should like to ask Professor Levi's advice. How would he like to have the well-nigh impossible task of making a "judicious abstract" of the speeches of some who may attend the society with which he is connected—that well-managed, prosperous, and most useful body, the Statistical Society of London? I mention this here, as having a most practical bearing on the form which your published proceedings shall take. My advice on this point you have sought, and, such as it is, I give it freely. While advocating a "judicious abstract" of the remarks made by the various speakers at the reading of papers, I cannot disguise from you that such a proceeding is attended with great difficulties and great dangers to all who desire to live at peace with their fellows. The poor editor of our journal has made three or four enemies for life by his daring in condensing and putting into English and sense a report of some remarks made at our meetings, or by putting his pen through childish puerilities which, by some strange and unaccountable accident have, in a most marvellous manner, found their way into some of the papers read before the Society. In one instance the editor even dared to follow the custom of the society for five years, and not report the speeches at the general meetings. This brought down upon him emphatic condemnation. How he manages to survive and serenely enjoy life is a mystery. It is only, I believe, because, he feels he is doing his duty; and the character and style of his condemmers, is the best proof of his kindness and wisdom. If, therefore, you decide on giving reports of your speeches, you must be more careful than many other scientific societies are in the selection of members; or, without such care, you must be content to continually hear a piteous cry, or bombastic declamation, from the poor wretches who do not perceive how kind the editor is to them. On the whole, I think it best to advise a "judicious abstract" of the discussions which take place before any really scientific society. The true nature and real origin of such cries or declamations of these zealous reformers, will soon become apparent to you should you ever have the misfortune to admit amongst you such a person. I have attentively read your reports from the first, and take this opportunity of saying that I think, on the whole, you will do well to follow the example of your parent society, and print an abstract of your discussions.

"I must end as I began. Do not surrender freedom of discussion to save your society. On the contrary, rather let your society die a public and immediate death, than give up your right to discuss the success of missionary enterprise, or any other subject which you consider comes within the range

of anthropology. We are all engaged in fighting for principles, and not for the success of societies. It is really because love of truth is so strong, that we are hated, and not because our society exists. The science of anthropology has now become a power not only in England, but in Europe. The triumph of anthropology means the downfall of superstition, fanaticism, and sentimental philanthropy. Are these objects not worth fighting for? Your success will depend on your own efforts. Believe me, ever yours faithfully,

"JAMES HUNT."

THE ANTHROPOLOGICAL AND ETHNOLOGICAL SOCIETIES.—Failure of the Amalgamation Scheme.—In the Journal of the Anthropological Society for the quarter will, we believe, be found the official reports of the delegates of the Anthropological Society respecting the failure of the amalgamation scheme. In our last number, we stated that it failed owing to the objections which Sir Roderick Murchison, and other members of the Council of the Ethnological Society, raised to the word Anthropology. We shall be glad to know that such a report is not true. It may be true that, in a moment of forgetfulness, Sir Roderick might have expressed himself against the word; but, as he stated distinctly in the *Pall Mall Gazette*, that he proposed Professor Huxley as president in order to effect an union, we cannot believe that he would willingly give up such a scheme on account of his objections to the word anthropology. Nor can we credit that Sir Roderick Murchison would have raised one word of objection to the proposal made by the Council of the Anthropological Society, that the selection of name should be left to an united general meeting of the Fellows of both Societies. Never, we believe, were fairer terms offered; and we think there must have been some untold reason why this proposal was not accepted. We shall be very glad to know why this proposal was refused by the Council of the Ethnological Society. This is a question which we think the Council of the Ethnological Society should answer most distinctly. We do not doubt that there were objections to such a plan; but why frustrate the union rather than submit to trifling inconveniences? We confess that, for our part, we at present look with grave suspicion on the fact that this proposal was not accepted. Some of our correspondents hint that this amalgamation of the two societies was desired by the Council of the Ethnological Society on other than purely scientific considerations. We feel bound not to believe this insinuation. We have heard the delegates of the Anthropological Society speak in high terms of two of the delegates of the Ethnological Society, Professor Huxley and Major-Gen. Balfour. We have also heard strong terms used by them respecting the conduct of the third member of the Ethnological committee. It has been rumoured in several quarters that, but for the manner in which Mr. Hyde Clarke misrepresented the finances of the Anthropological Society, the difficulties respecting the acceptance of the name "Anthropological" as the best that could be found, would have been carried in the Ethnological Council, although, perhaps, not unanimously. We commend the attention of our readers to the official reports in the Journal of the Society. The following correspondence may also help to throw light on this question. We need now only add that Dr. Richard King, who is a member of both Councils, has already publicly declared that the negotiations failed simply and solely on the question of name; and yet Mr. Hyde Clarke openly affirms that the negotiations failed on financial grounds, and published this as a fact; while a fortnight later he declares that the amalgamation was frustrated by one person, and that person the one who is known to have desired it more earnestly, and

done more to forward it than any other living man. Why do not the Society appoint a committee of physiologists and pathologists to make a report for their guidance in the treatment necessary for this unique anthropological specimen? We now merely publish the following correspondence:—

“The Anthropological and Ethnological Societies.

“Fleetwood House, Maida Vale, W.

“21st Sept., 1868.

“Sir,—I beg leave to say a few words upon the dispute which has arisen, during my absence from England, concerning the Anthropological Society of London. It seems to me that there rests upon the personal characters of certain Fellows an imputation which has not yet been noticed. Before proceeding further, however, I wish to state that I belong to no clique; a fact which, I think, will be apparent from the pledge given by me at the end of this letter. I allowed myself to be nominated as a member of Council in the summer of this year, upon the representation that the Anthropological and Ethnological Societies were to be united, and that the debt of the former amounted to about £700 (considerably less than one year's income). I had previously served on the Council, but had resigned early in the year 1867. The result of my nomination was, that I was elected a member of Council soon enough to take some part in the discussions upon the proposed union. Three officers of the Anthropological Society (Dr. Hunt, Mr. des Ruffières, and Mr. Brabrook) were appointed to meet three representatives of the Ethnological Society, and at length reported that everything, except the name to be given to the new society, had been arranged to the satisfaction of both sides. Now, the three deputies appointed by the Ethnological Society were Professor Huxley, General Balfour, and Mr. Hyde Clarke. Hence arises a very important question. Did Dr. Hunt, Mr. des Ruffières, and Mr. Brabrook, hoodwink the Council of the Anthropological Society, or did Mr. Hyde Clarke, believing the persons whom he met to be jobbers, puffers, and charlatans, express his willingness to sit at the same council-board with them? This is a dilemma from which Mr. Hyde Clarke's letters to the *Athenæum* leave no escape. Mr. Hyde Clarke denounces the “puffery, jobbery, and charlatanism of the Anthropological Society”; the three Anthropological deputies reported that the three Ethnological deputies, of whom Mr. Hyde Clarke was one, were perfectly willing to ally themselves and their followers with the Anthropological Society, if only they could find a name to their taste. My fellow-councillors and I were assured that there remained no difficulty either of finance or of future management; and that, if the negotiations fell through at all, they could only fall through upon the question of name.

“I shall not trespass on your space by applying any epithets to the person or persons who may have been in fault in this affair; but, should the report of Dr. Hunt, Mr. des Ruffières, and Mr. Brabrook, prove to be correct, I shall, as an independent member of Council, propose another special meeting of the Anthropological Society, for the purpose of expelling Mr. Hyde Clarke; and should that report prove to be false, I shall propose a special meeting for the purpose of expelling Mr. Brabrook, Mr. des Ruffières, and Dr. Hunt himself. Let the issue be clearly understood. I shall, in the one case, propose the expulsion of Mr. Hyde Clarke, not because he has written to the *Athenæum*, or complained of the *Anthropological Review*, or investigated our finances, but because he must have played a doubly treacherous part; firstly, in consenting to give persons whom he believed to be jobbers, puffers, and

charlatans, an equal share with his own friends in the management of a new and very large society; secondly, in turning round, when the negotiations were ended, upon the very persons with whom he had consented to sit at the same council-board, and accusing them of being everything except men of honour and men of science. I shall, in the other case, propose the expulsion of Mr. Brabrook, Mr. des Ruffières, and Dr. Hunt, because they must have committed an unpardonable offence against the Council and against the Society, in deliberately misrepresenting the whole course of the negotiations. It is necessary in the interest of both societies that the real offender or offenders should be discovered. This can easily be done with the assistance of Professor Huxley, General Balfour, and the Council of the Ethnological Society, and I therefore send a copy of this letter to the President and Council of that Society. I send a copy also to Mr. Hyde Clarke, and another to Dr. Hunt, in order that no one may be taken by surprise.

"I am, Sir, your obedient servant,

"To the Editor of the *Athenæum*."

"L. OWEN PIKE.

(Copy.)

"4, St. Martin's Place,
"Sept. 22nd, 1868.

"My dear Mr. Pike,—I have duly received a copy of the letter which you have addressed to the *Athenæum*, of which I am also glad to learn you have sent copies to Professor Huxley and Mr. Hyde Clarke.

"I am very pleased to hear that you propose to bring the subject under the consideration of the Council. Many of the members are still out of England; but I hope to be able to have a meeting early in October. Before then, my official report, as well as that of the Director and Mr. Robert des Ruffières, will be issued to the Fellows of the Society, as both my own and Mr. Brabrook's report is already printed. Mr. Robert des Ruffières has been ill, but I hope his report will also be ready for issue in the official Journal of the Society.

"Dr. Richard King, the founder of the Ethnological Society, is a member of the Councils of both societies, and, I believe he attended the Councils of both societies during these negotiations. You will, perhaps, do well to ask him to attend the next meeting of our Council, which will most likely be held on Wednesday, October 7th, at four o'clock. Believe me, dear Mr. Pike, yours very faithfully,

"JAMES HUNT,

"President of the Anthropological Society of London.

"Luke Owen Pike, Esq., M.A., F.A.S.L., etc."

TO THE EDITOR OF THE ANTHROPOLOGICAL REVIEW.

Sir,—Will you be so kind as to insert a few remarks upon the squabble raised in the bosom of the Anthropological Society, by one or two of its Fellows, if these be not out of place in your valuable publication. I trust that these remarks will lead to the full comprehension of the dispute those readers who have had no opportunity to follow it from the beginning. In May and June, 1867, during the financial crisis, it struck the Council that the Fellows who were in arrears for paying their subscriptions, could not then easily be pressed for paying them; and that until comparatively better times came, it would be imprudent, under the circumstances, to maintain the expenditure of the Society at the rate it was then going on. The Society itself was pretty heavily in arrears with its printer, and it was speedily resolved by the Council to cut down expenses with no sparing hand, and to

clear the Society of its liabilities. The reforms soon told; and the effected savings began immediately to materially decrease the balance against the Society. This was the state of affairs when the annual anniversary general meeting took place in January, 1868. Two or three Fellows, at that meeting, accidentally forgetting, or willingly ignoring, the wise economies then in progress, spoke about the financial position of the Society as if it, instead of daily improving, was unsound and unsatisfactory. Their censure passed rather unnoticed, on account of the general feeling that it was uncalled for. Seven months afterwards the Council, by careful management, had actually reduced the liabilities by more than one half, and brought them to an amount which could no longer appear alarming even to the most timid members. The subscriptions expected to be paid in within a short period, and the assets in the possession of the Society, are quite sufficient to cover the whole debt; and this without speaking of the £1500 or more for which defaulters are still liable to the Society, though not pressed for payment; or the fact that the chief creditor of the Society (the printer) has never pressed, and is at present further than ever from pressing the Society for money.

It was, however, just at this time (August), when the Council more than ever felt the soundness of the Society's financial position, that the same two or three fellows who had spoken at the general meeting, still ignoring the fact of the speedy reduction of the debt, without any warning to the Council, suddenly opened a most regrettable controversy in the *Athenaeum* about the *soi-disant* danger of the Society on the question of finances, and attacked the officers and Council in the most ungentlemanly manner, to say the least. Some other motive surely than pure science, must have actuated them. Some shrewd members whisper, that the chief medium of the malcontents is working hard at the board of another society, in order to improve it by all human means, fair or unfair, and attract to it the few timid anthropologists who may be frightened into resigning during the squabble.

Here I conclude; for it is enough to give an *exposé* of the facts, to at once enlist justice on the right side, wherever that may be. I beg to remain, Sir, yours obediently,

F.A.S.L.

September 20th, 1868.

170, South Lambeth Road, S.W.
Sept. 26, 1868.

In the *Athenaeum* of to-day, I perceive a letter from a Mr. Hyde Clarke, in which it is stated that "the 'accounts' for 1864, to which your [Mr. Pike's] name appears, reveal a state of affairs which may well induce you to be cautious in impugning the conduct of those who ask an investigation into the real transactions these so-called accounts conceal."

I have hitherto refrained from degrading myself by any controversy with Mr. Hyde Clarke or his supporters; but as the above passage is apparently intended to infer that I was the fabricator of "so-called accounts" designed to "conceal" some "real transactions" which were hid from the Society, I beg to state that these accounts were carefully prepared from the books of the Society by myself, approved by the then treasurer, Dr. R. S. Charnock, and audited by two independent Fellows, Messrs. Beavan and Pike. If Mr. Clarke will illustrate more directly his charges against the accuracy of these accounts, I shall be able more definitely to specify the general imputation of mendacity which I now make respecting him and his writings.

C. CARTER BLAKE.

3, Finsbury Square, London, Sept. 24th, 1868.

A short time ago I heard a distinguished man (an officer of the Ethnological Society) remark that the Anthropological Society was being eaten up by internal dissensions, and that he himself intended to do all in his power to ruin it. I now gather, from recent letters in the *Athenaeum*, whence this gentleman derived his information; and I also believe that he will soon discover that his informant, whom I regard as a diseased excrescence on an otherwise healthy and vigorous constitution, will shortly be removed from the body to which he at present belongs, either by a surgical operation, or by frequent applications of caustic.

It is easy also to divine, after what has occurred, why the Ethnological Society wanted to exact other terms than those originally acceded to by its President when the amalgamation scheme was on the *tapis*. When the Ethnological Society's Council awoke to the realisation of the way they have been deceived, what will they say?

The late attacks, however, on the Anthropological Society, so far from injuring it, will, I believe, have an exactly opposite effect.

Unjust and unmanly as these attacks on the Society's finances, etc., are pronounced on all sides, the result of them will only be to attach warm friends still more nearly, and to enlist those who have hitherto been only lukewarm friends into closer union and make them more zealous workers in our cause, and more earnest well-wishers for our success.

H. BEIGEL, M.D.,

Chairman of Finance and Publication Committee
of the Anthropological Society of London.

BOUCHER DE PERTHES.—Another of the Honorary Fellows of the Anthropological Society of London has passed away, in the estimable and amiable Boucher de Perthes, of Abbeville. He was the originator of the modern science of Archaic Anthropology, especially in relation to worked flints.

We learn that there is a probability of Ex-governor Eyre being nominated as the next president of the Anthropological Society of London. We think that no better selection could possibly be made. Mr. Eyre's actual knowledge of the native Australians, and of the mixed-breed population of our West India Islands, is perhaps unsurpassed by any living man; while his well known humanity will do much to remove the erroneous impression in the minds of the ignorant that the Fellows of the Anthropological Society have an antipathy to the lower species of humanity. On this subject, we cannot do better than protest, as we have before done, on the wholesale extermination of the natives of Australia. The following is going the round of the public papers without any protest from our mock humanitarians, whose sympathy seems confined to the full-flavoured negro of West Africa:—

“ News from Carpentaria announces the murder of Mr. W. Manson (once inspector of police in Queensland), with a Chinese companion, by the blacks. How the murder was avenged is related by a correspondent of a Brisbane paper as follows:—“ I much regret to state that the blacks have become very troublesome about here lately. Within ten miles of this place they speared and cut steaks from the rumps of several horses. As soon as it was known, the native police, under Sub-inspector Uhr, went out and, I am informed, succeeded in shooting upwards of thirty blacks. No sooner was this done than a report came in that Mr. Cannon had been murdered by blacks at Liddle and Hetzer's station, near the Norman. Mr. Uhr went off immediately in that direction, and his success, I hear, was complete. One mob

of fourteen he rounded up; another mob of nine, and a last mob of eight, he succeeded with his troopers in shooting. In the latter lot there was one black, who would not die after receiving eighteen or twenty bullets; but a trooper speedily put an end to his existence by smashing his skull. In the camp of the last lot of blacks Mr. Uhr found a compass belonging to Mr. Manson, of the Norman, and a revolver belonging to a Chinaman. He then followed the tracks of the sheep Manson and the Chinaman had a short time before passed with, and in a water hole found the bodies of poor Manson and the Chinaman cut about and mutilated in the most frightful manner. Cannon's body has also been found. Everybody in the district is delighted with the wholesale slaughter dealt out by the native police, and thank Mr. Uhr for his energy in ridding the district of fifty-nine myalls."

ANTHROPOLOGICAL CONGRESS.—We hear that there is some intention of holding in London or Paris, either next year or in 1870, a general congress of European and American anthropologists. We believe that the step will meet with the approval of the chief anthropological societies of Europe and America. It is not however yet decided whether the congress will be held London or Paris; the congress will, we believe, be presided over in either case by Prof. Broca. Dr. Carter Blake has been nominated general secretary to the organising committee; we shall be able to give further details in our next issue.

BRITISH ASSOCIATION.—Our report of the recent meeting of the British Association must be postponed, as well as our remarks on the papers read at Norwich on Archaic Anthropology, or, as it was there denominated, "Prehistoric Archaeology."

ANTHROPOLOGICAL LABORATORY.—We learn that it is contemplated to establish in London an anthropological laboratory, after the same plan as the one recently established by Prof. Broca in Paris. Students at this laboratory will be instructed in all the different branches of the science of anthropology. We hail the establishment of such a laboratory with much satisfaction, and we shall be glad to do all we can to render it a success.

THE FINANCES OF THE ETHNOLOGICAL SOCIETY.—At the last annual meeting a member of the present Council of the Ethnological Society made some remarks on the financial condition of the Ethnological Society. We believe he was not then a member of the Council of this Society, but now his ambition is gratified he will, if he likes to try, get his eyes opened on this subject. The real facts, we believe, are these:—It was found, during the recent attempt to unite the Ethnological and Anthropological Societies, that, allowing each society nine per cent. of life compounders, that the Ethnological Society has an excess on this head of about twenty per cent. The actual figure we believe to be that in the Ethnological Society there is a debt from life compositions not invested of £240 for every hundred members. This will give the Anthropological Society to have a debt in the then much larger number of Fellows of £1680. The entire liabilities of the Anthropological Society we learn do not amount to £800, and this will probably be all recovered for defaults and stock of books in hand. The nine per cent. of life compositions is invested in furniture, &c., with the Anthropological Society; the result of the whole is that the Anthropological Society is as good as free from debt, while there is a debt of £240 for every hundred members in the Ethnological Society. Could not both societies unite in getting up a fancy bazaar to pay each other's debts or liabilities?

CAPTAIN BURTON does not intend to return to England at present; he is

so much pleased with his South American life that he feels no inclination to relinquish it. We understand that he is now busily engaged annotating the second volume of Waitz's *Anthropology of Primitive Peoples*, the English edition of which has been forwarded to him for that purpose by Mr. J. Fred. Collingwood. Captain Burton's notes cannot fail to add very materially to the value of this elaborate work on the different races of men inhabiting Africa. The Council of the Anthropological Society is, we believe, ready to order it to be printed immediately the MS. returns to England.

RETEZIUS.—The English edition of the collected Anthropological writings of Retzius was commenced printing in the autumn of 1866. The financial crisis of that period so much affected the financial condition of the Anthropological Society, that the Council ordered the printing to be stopped. A portion of the work was however at that time printed, and we believe that the Council will be able, with the co-operation of the body of Fellows, to now issue the work without further delay.

MEMOIRS OF THE ANTHROPOLOGICAL SOCIETY.—The third volume of the Memoirs of the Society is now nearly half printed, and will, we believe, be of equal scientific value to the two other important and valuable volumes which have been published in this series.

THE GUATUZO INDIANS OF COSTA RICA.—Much interest has been attracted of late to these Indians, and especially by Dr. Diezmann's present of a skull of a Rio Frio Indian to the Anthropological Society (see p. clxxvii, *Journal of the Society*). The stone implements, also presented by the learned doctor, are undoubtedly of interest; but the method of *emmancement* to which, I believe, he has not called attention, is still more so. Mr. J. J. Burgess, of the Chontales Mining Company, has now in his possession one of these implements mounted in the natural helve. The wooden handle is coarsely rounded, and the axe is inserted not near the end of the handle, but towards the middle, in such a manner that a large part of the wooden handle extends outward and beyond the implantation of the axe. I have never myself seen such a case of implantation; but Dr. Louis Lartet assures me that similar instances of this most singular *emmancement* have been observed by him from the Swiss *pfahlbauten*.

C. CARTER BLAKE.

We learn that Mr. Ephraim G. Squier, Hon.F.A.S.L., is now collecting a series of most important observations on the skulls of the Peruvian races, which will be shortly published.

DR. NOTT. Hon.F.A.S.L., is, we are happy to say, engaged in active practice in New York, having left Mobile. He is as staunchly devoted to consistent anthropological opinions as in the days of the publication of *Types of Mankind*; but he regrets extremely that the late war has cut him off from the receipt of many scientific memoirs, which appeared between the years 1861 and 1865.

ANTHROPOLOGY IN CENTRAL AMERICA.—We believe that an attempt was made in March last, by several anthropologists in Central America, to establish a system of co-ordination of observations in anthropology and to obtain reliable statistics on the proportion of the mixed breeds in Nicaragua. A preliminary meeting took place at the Hotel Sirena, Granada de Nicaragua, Dr. C. Carter Blake in the chair, and Colonel Limburg, U.S.A., in the vice-chair. Several Spanish, French, and German gentlemen were present, and the proceedings were carried on in Spanish. Dr. A. Downing, Local Secretary for Granada, promised to place certain skulls and ancient implements derived from ancient Diri graves near Granada at the disposal of the An-

thropological Society of London. It was resolved that a Local Anthropological Society should be founded, to meet in the first week of every month during the dry season, and Colonel Limburg was elected Honorary Secretary, to prepare regulations, etc. The sudden death of the gallant officer from yellow fever, and the departure of Dr. Blake for England, has abruptly terminated, however, the proceedings for the present.

ARCHAIC ANTHROPOLOGY.—We understand that the President and the Director of the Anthropological Society of London have announced their intention of attending the meeting of the International Congress of Archaic Anthropology which is to be held next year, in the beginning of July, at Copenhagen. We understand that Dr. Hunt will afterwards again visit Norway to complete his observations for his paper on the "Physical Characters of the Modern Norwegian". Mr. Brabrook intends, we believe, at the same time to visit the Museums of Christiania and Stockholm.

SIR RODERICK MURCHISON AND PROFESSOR HUXLEY.—We have to express our deep regret if any remarks we made in our last number have given the slightest offence to either Sir Roderick Murchison or Professor Huxley. Some, whose opinions we value, have thought that our remarks on these gentlemen were either sarcastic or "slightly satirical." We can only say in reply, that we were informed that Sir Roderick Murchison had objected to the word anthropology. With regard to our own opinion of Sir Roderick Murchison, it will be found by referring to the first volume of this publication. We have nothing to withdraw from what we then said of Sir Roderick, and we still believe him to be the very best president of any scientific society. We then said, "We heartily coincide with Mr. Crawfurd's remarks, 'that nature evidently intended Sir Roderick Murchison to be a president. He combined in a most happy proportion firmness and amenity, and always made the meetings over which he presided pleasant and profitable,'" p. 463. We further said, "On the whole, therefore, we have no hesitation in saying that the general result of the meeting must be considered satisfactory to anthropologists. Several circumstances combined to make Section E one of the most popular sections, as indeed it always has been when at all properly conducted. In the first place, the Section was presided over by the prince of presidents, who was a host in himself, and who, we are bound to admit, contributed far more than any other man to make Section E popular, and its proceedings satisfactory. Sir R. Murchison was free from the little-mindedness shown by some of his associates. His whole conduct in the chair was both fair and honest; and all his exertions were used to render the meeting agreeable to all parties. Thus, we know, he frequently felt it his duty to remain at his post to his own serious inconvenience. We can only regret that his other high duties, as one of the chief rulers of the Association, caused him to occasionally absent himself. There was no one at all capable of filling the post like Sir Roderick. It is no disparagement that his two countrymen who acted occasionally in his absence, were far from being so successful in their presidency as their eminent friend." There must, we feel sure, be some mistake or misunderstanding in the report that Sir Roderick objected to the word anthropology—an idle rumour of mischief-makers. In 1863, we know, as a fact, and not as a rumour, that Sir Roderick used these noble words: he "hoped that the science of anthropology, which had been founded by his friends, Blumenbach, Retzius, and Von Baer, would, ere long, be recognised by the scientific world." We do not believe that Sir Roderick would deliberately oppose the science, or even the name for the science, which

was used by these three eminent men. Blumenbach, Retzius, and Von Baer, all used the word anthropology just as it is being used at present by every scientific man in Europe. Every English anthropologist looks with the greatest veneration on all these great men.

With reference to Prof. Huxley we will only say that his present position is a most anomalous and unsatisfactory one. His good name and fair reputation have become for the moment tinged by his apparent connection with the doings of Mr. Hyde Clarke; we feel sure that the recent disgraceful conduct of a member of his Council will be as much condemned by him as we condemn the conduct of one of the members of the Council of the Anthropological Society. Both are equally disgraceful to the societies to which they belong. Our pages have so often borne testimony to the zeal and ability of Prof. Huxley that it is not necessary here to repeat our admiration of them.

With regard to the Ethnological Society we will only here reprint what we said in 1863, and are ever ready to repeat. "We are as much interested in the result of Ethnological science as of general Anthropology. There may be differences of opinions as to the best means of advancing the science of mankind; but we are sure that there is no difference of opinion as to the importance of Ethnology, or the science of races. Nor do we think that any man is worthy of the name of an ethnologist who looks with disfavour on those anthropologists who believe that the science of mankind embraces something more than ethnology; rather ought they to rejoice to see the great success which is attending the labours of their fellow-workers. The British Association is for the advancement of science, perfectly regardless of personal opinions or party cliques; we feel sure, therefore, that it only requires a little time to remove any jealousy that may exist in the breasts of some ethnologists respecting the success attending the labours of anthropologists. Let them learn not to quarrel with the decrees of nature. Astronomy was not arrested in her progress by the clamours of the astrologers; nor will anthropologists cease to develop the extent, magnitude, and importance of their science by the invectives of ethnologists. Rather let them develope their own subject, and look with rejoicing on the beneficent wave which will ere long remove them from their present state of isolation, and raise them to their place as one of the branches of light which will illuminate the great system of organic life."

WE HAVE much pleasure in announcing that the prize of one hundred and fifty guineas offered by the Eisteddfod for the best essay on *The Origin of the English Nation*, has been awarded by the judge, Lord Strangford, to Dr. John Beddoe, Vice-President of the Anthropological Society of London. We heartily congratulate Dr. Beddoe on his success. Dr. Beddoe has long occupied a high place amongst British anthropologists, and we are glad to be able to make public his recent success. We trust this important essay will soon be published. The MS. is the property of the Eisteddfod, but it is somewhat uncertain when they will publish it. It is possible that we may be able to give it to our readers in our own columns.

WE have received from Mr. Luke Burke a letter informing us that he has no present intention of again attempting another issue of his *Ethnological Journal*. He says that we have made him responsible for a third failure. About the same time we received a letter from Mr. Mackenzie, calling our attention to the fact that Mr. Burke's *Ethnological Journal* has already failed on three occasions, and that in our notice we did not mention the issue of

The Quarterly Journal of Ethnology, which took place about 1850. We are really sorry that Mr. Burke cannot be induced to publish his most interesting periodical. We only wish that it were in our power to induce Mr. Burke again to take his pen and enlighten his associates as to the value and influence of race distinction in humanity. We never knew a time when Mr. Burke's services were more needed.

NICARAGUAN ANTHROPOLOGY.—It is to be anticipated that our knowledge of the anthropology of Nicaragua is likely to receive an impulse of importance. Since the return of Dr. Carter Blake, another Fellow of our Society has gone to reside in that country. We allude to Mr. H. G. Williams, late Local Secretary for Cearà, North Brazils, who by this time has probably arrived at the mines, and who has promised to use his best exertions on behalf of anthropological science throughout the Chontales district.

GEORGE R. GLIDDON.—Mr. Kenneth R. H. Mackenzie is far advanced in his completion of a fitting memoir of the late George R. Gliddon, the enthusiastic egyptologist and anthropologist, assisted by Mrs. Gliddon. An important and interesting series of letters illustrative of the literary history of *Types of Mankind and Indigenous Races of the Earth*, addressed to Dr. J. Barnard Davis, V.P.A.S.L., F.S.A., will be given by that gentleman's kind permission. Mr. Mackenzie desires us to announce that he will be greatly indebted for any addition to his materials.

A CAVE STORY.—A correspondent of a paper in New York professes to have discovered a magnificent artificial cavern in the Hudson palisades. The description is ornate, and omits no details which could add to the interest (or improbability) of the story of discovery. The cave is said to be fully one mile in length and at least half a mile wide, with a vaulted roof, higher than that of Trinity Church, supported by innumerable pillars, which must have been erected by the hand of man many centuries since, and furnished with innumerable side recesses, ante-chambers, and long winding passages of the most wonderful construction. Ruins, thousands of years old, are found, together with the mouldering bones of beings of enormous stature, "as belonging to a race of giants that formerly inhabited the earth." The floors are as smooth and hard as granite, though covered deep with the dust of centuries. Here and there a lower deep is discernible through the all-pervading gloom, with spacious stone steps leading thereto. From these mysterious cavities the sound of rushing waters falls upon the ear, with other reverberations of a strange, unearthly character. Cabalistic signs cover the bases of some of the pillars, while figures bearing a close resemblance to sphinxes, deaths' heads and mummies, as if of Egyptian design, adorn various portions of the walls and roof. The famous Sun hoax was constructed with a little more plausibility.

AMERICAN PRE-HISTORIC REMAINS.—Researches are being made among the pre-historic remains in the Mississippi Valley, one object of which is to make a full collection of ancient art, representing the archaeology of the northern division of the western continent. The mounds on the American Bottom, in Illinois, are comprised in two groups constituting a single grand system. The number of them, including those on the American Bluff, is nearly two hundred, of various shapes and sizes, some being hardly raised above the general level, and others rising to a height of ninety feet. They are entirely composed of earth, and constructed with perfect regularity. It is beyond doubt that every mound was elevated by human labour, and it is thought that these tumuli were all erected by the same people. Mr. De

Haas writes to a western paper describing some of the remains found in these mounds. There are, it seems, two kinds of pottery found there; one is fine, compact, close-grained, kiln-burned, painted, and tastefully ornamented, and proves much skill. The other is coarse, rude, of irregular thickness, sun-dried, ornamental without taste; and some of the finer quality occasionally shows a polishing or glazing, leaving minute striæ, as if done with a tuft of grass dipped into a *barbotte*. In making some excavations on the plain, a short distance west of the large mound, Mr. De Haas discovered large quantities of pottery in connection with human remains. Some of them were rude and quite heavy. One was clearly a cinerary urn. The stone weapons, implements, and ornaments indicate two classes, one represents the palæolithic, or undressed stone age; the other the neolithic, or polished stone age, of Sir John Lubbock. Some of the specimens of the finer quality are described as of exquisite skill and workmanship, and are of porphyry, hornbeam, granite, serpentine, nephrite, and the hardest varieties of amphibolite rock. Agricultural implements have been found in these mounds, unlike anything of the kind discovered elsewhere. The hoe of the mound builders is said to be but little inferior to that of our own generation of patent agricultural tools. The small quartz weapons of this ancient people are very fine; ranging from the common horn stone up through all the varieties to the purest calcedony. The celts or axes are of almost every style and finish, some being very large, weighing over ten pounds. A gigantic implement far surpasses these in size, some weighing over twenty-five pounds. The use of the latter was probably to dress hides or crush corn. Mortars and pestles have been recovered, as well as pipes, discs and porphyritic rings for games. According to the discoverer above referred to, "the ornaments with which this unknown race decorated their persons, the weapons with which they fought, the implements with which they slew their game, and the vessels with which their domestic board was served with viands, have all been recovered, with a large number of miscellaneous articles in stone, which constitute, with those from other antiquarian locations, one of the most extensive and valuable collections of early American art yet made."

SICILY.—In Sicily, on one of the plateaux of the Cassaro mountain, ruins have been discovered which indicate the existence of a great city, whose origin dates from the period when a colony of Syracusans established themselves in this spot. According to the historians, this city can be no other than the ancient Ciastro. The walls have a development of 2,154 yards, and are 9 ft. 10 in. thick; the materials are stratified marly limestone, well chiselled. The entire circumference of the town is about 6,400 yards. It was divided into many quarters, and in the eastern portion the ruins of a temple are visible. Not far from this city there exists another locality called Castro-Novo, of very ancient origin.

To the Editor of the *Anthropological Review*.

KITCHEN-MIDDEN IN BRITTANY, AT DOELAN. SIR,—Perhaps the following notes concerning an apparently abnormal kitchen midden on the Coast of Finistère may interest some of your readers:—

In the summer of 1866, while staying at the little fishing village of Doelan, on the coast of Finistère, Mr. Peyron and myself were struck with an artificial-looking, grass-covered, mound situated on a little headland named Bee-au-tuch, which forms the northern side of the creek of Doelan. We accordingly set to work opening it, an operation which was greatly facilitated

by an excavation in one side of the mound, which was being made by the peasants of the neighbourhood for the sake of loose flat stones with which to repair their dykes or walls.

The mound in question stands as a small irregular boss on the bare rock (consisting here of metamorphic schists). The greatest height, about the centre, did not exceed six feet. The upper part of the hillock was covered by a thin layer of soil; immediately below this came the true kitchen-midden, consisting of a layer, between three and four feet thick, of the shells of edible molluscs: these were, the common limpet, the periwinkle, and the cockle, all three in abundance, a few oysters (not found here at the present time, although common a few miles north), and a few débris of ormers. All these shells were white, and readily crumbled to pieces.

This heap of shells rested upon a very rudely-arranged layer of flattish flakes of stone (mica-schist), say three inches or so in thickness, below which not a shell was to be seen. The space intervening between this covering of stones and the rocky base of the knoll was filled with a black animal mould containing a large number of bones. These bones were well seen *in situ*, but crumbled into dust as soon as they were removed; many were human, but the greater number, although not determined, evidently belong to small mammalia, such as the dog or fox, etc. . . After a good deal of grubbing in this bone-bearing black mould, Mr. Peyron disclosed to view an almost perfect human skull; upon attempting to extract it from the soft matrix, however, it fell into dust like the rest of the bones, with the exception of a considerable portion of the maxilla and some teeth—four, I think. These, with such of the other bones as we managed to preserve, are now in the possession of the "Société Polymathique du Morbihan," and are, I presume, in their museum at Vannes.

I need not point out that the interest connected with this mound lies in the curious, and to me, new fact of the superposition of a true kitchen-midden of the ordinary type on an older and covered (however rudely it was still covered) heap of animal remains of a totally different character. Not a single bone being found in the shelly portion, and no shell in the black earth or bony part.

To my mind, notwithstanding the accompanying foreign animal remains, it seems clear that the lower portion containing the skull and the human bones is an old burial place or small tumulus; and not, as might, perhaps, be suggested, an older kitchen-midden belonging to people addicted to cannibalism. The covering of flat stones of itself seems enough to show that some kind of respect or awe was attached to the contents of the heap, and that it was not a mere pile of refuse.

No marks of any sort were observed on any of the bones; but I do not attach any importance to this, as the state of the remains was such that, had there been any, they might very easily have been overlooked. No implements, nor, indeed, any signs of human workmanship were found.

If a tumulus, it is extraordinary that later people should have chosen it as a convenient surface on which to make a kitchen-midden. If, on the other hand, it be a mere refuse heap, the layer of stones with which it is covered is very difficult to account for.

I must leave it to more competent judges to decide this question, and will be happy to give any information in my power on the subject.

G. A. LEBOUR, F.R.G.S., etc.,

Of the Geological Survey of England and Wales.

Chollerford, Hexham, 18th September. 1868.

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